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Cover Page Footnote

The Authors are grateful to the New York State Division of Criminal Justice Services and the New York City Department of HHealth for generously supplying data for this research. Tamara Dumanovsky helped conceptualize and launch the project and supervised the assembly of datasets. Nicole Mutter and Carolyn Pinedo provided excellent research assistance.

RECIPROCAL EFFECTS OF CRIME AND INCARCERATION IN NEW YORK CITY NEIGHBORHOODS†

*Jeffrey Fagan**

*Valerie West***

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INTRODUCTION

The concentration of incarceration in social groups and areas has emerged in the past decade as a topic of research and policy interest. This interest was fueled by several factors: persistent continued growth of incarceration through the 1990s, even as crime rates fell nationally for over seven years;¹ persistent racial disparities in incarceration;² assessments of the collateral consequences of incarceration that potentially aggravate the causal dynamics that lead to elevated crime rates;³ rapid growth in the number of returning pris-

† An earlier version of this Essay was presented at the Twelfth Annual Symposium on Contemporary Urban Challenges entitled "Beyond the Sentence: Post-Incarceration Legal, Social, and Economic Consequences of Criminal Convictions," held at the Fordham University School of Law on February 20, 2003. This research was supported by Grant 85-00-11 from the Russell Sage Foundation, Future of Work Program. All opinions are solely those of the Authors, as are any errors. The Substance Abuse Policy Research Program of the Robert Wood Johnson Foundation provided additional support for this research.

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1. Alfred Blumstein & Allen J. Beck, *Population Growth in U.S. Prisons, 1980-1996*, in 26 CRIME AND JUSTICE: A REVIEW OF RESEARCH: PRISONS 17, 54-57 (Michael Tonry & Joan Petersilia eds., 1999).

2. MARC MAUER, RACE TO INCARCERATE 118-42 (1999); see Thomas P. Bonczar & Allen J. Beck, U.S. DEP'T OF JUSTICE, NCJ 160092, LIFETIME LIKELIHOOD OF GOING TO STATE OR FEDERAL PRISON 1 (1997), available at <http://www.ojp.usdoj.gov/bjs/pub/pdf/lsgsf.pdf> (last visited July 15, 2003).

3. John Hagan & Ronit Dinovitzer, *Collateral Consequences of Imprisonment for Children, Communities, and Prisoners*, in 26 CRIME AND JUSTICE: A REVIEW OF RESEARCH: PRISONS, *supra* note 1, at 121-22; Joan Moore, *Bearing the Burden: How Incarceration Policies Weaken Inner-City Communities*, in THE UNINTENDED CONSE-

oners to their communities;⁴ an influx that may strain social control in neighborhoods where social and economic disadvantages have already created acute crime risks.

While there is consistent evidence of the social concentration of incarceration among poor non-white males, there have been few studies of the spatial concentration of incarceration in neighborhoods in the nation's large cities. Recent evidence suggests that the growing social concentration of incarceration is tied to the spatial concentration of incarceration in poor urban neighborhoods.⁵ In 1996-97, Professor Todd Clear and his colleagues examined the effects of incarceration admissions and returns in Tallahassee, Florida neighborhoods using a two-wave panel design.⁶ Professors James Lynch and William Sabol⁷ estimated incarceration rates by neighborhood in Baltimore, Maryland, focusing on concentration of prisoners spatially and temporally.⁸ These studies show that the risks of going to jail or prison grow over time for persons living in poor neighborhoods, contributing to the accumulation of social and economic adversity for people living in these areas, as well as to the overall well-being of the neighborhood itself.⁹ These studies notwithstanding, incarceration has generally been omitted as an ecological factor in the production of crime, particularly in research on crime in neighborhoods.

Yet, there are several reasons to consider incarceration as part of an ecological dynamic of crime in neighborhoods. High rates of incarceration can adversely affect the ability of returning prisoners to re-enter labor markets, and thus aggravate social and economic disadvantages within areas where former inmates are concen-

SEQUENCES OF INCARCERATION: PAPERS FROM A CONFERENCE ORGANIZED BY THE VERA INSTITUTE OF JUSTICE 67, 72-75 (1996). See generally INVISIBLE PUNISHMENT: COLLATERAL CONSEQUENCES OF MASS IMPRISONMENT (Marc Mauer & Meda Chesney-Lind eds., 2002).

4. Todd R. Clear et al., *Incarceration and the Community: The Problem of Removing and Returning Offenders*, 47 CRIME & DELINQ. 335, 338-39 (2001).

5. Robert J. Sampson & William Julius Wilson, *Toward a Theory of Race, Crime, and Urban Inequality*, in CRIME AND INEQUALITY 37, 38-41 (John Hagan & Ruth D. Peterson eds., 1995).

6. Todd R. Clear et al., *Coercive Mobility and Crime: A Preliminary Examination of Concentrated Incarceration and Social Disorganization*, 20 JUST. Q. 33, 45 (2003).

7. James P. Lynch & William Sabol, *Effects of Incarceration on Social Control in Communities*, in THE IMPACT OF INCARCERATION ON FAMILIES AND COMMUNITIES (Mary Pattillo et al. eds., forthcoming); Dina R. Rose & Todd R. Clear, *Incarceration, Social Capital and Crime: Examining the Unintended Consequences of Incarceration*, 36 CRIMINOLOGY 441, 441-45 (1998).

8. Lynch & Sabol, *supra* note 7; Rose & Clear, *supra* note 7, at 441-45.

9. Lynch & Sabol, *supra* note 7; Rose & Clear, *supra* note 7, at 441-45.

trated.¹⁰ Incarceration often disrupts family ties and social networks, aggravating vulnerabilities to crime through compromises to social control, creating a churning effect on social networks.¹¹ Incarceration destabilizes crime networks and potentially introduces systemic violence associated with competition among crime groups for territory and market share.¹² High rates of incarceration may also reduce incentives for citizens to participate in informal social control by reducing the communicative value of sanctions, de-legitimizing law and legal actors, further inviting crime, and intensifying the crime-enforcement-incarceration-crime cycle.¹³ Incarceration potentially stigmatizes neighborhoods, complicating the ability of residents to access job hiring networks to enter and compete in labor markets,¹⁴ and deterring businesses from locating in those areas.¹⁵ These dynamics suggest that incarceration is not simply a consequence of neighborhood crime, but instead may transform into an intrinsic part of the ecological dynamics of neighborhoods that may actually elevate crime within neighborhoods. The locus of these effects is at a small social level: within neighborhoods or other small spatial aggregates. Identifying and estimating these dynamics is the focus of this Essay.

This Essay uses data from New York City on neighborhood rates of incarceration in jail or prison in five waves over a twelve-year period beginning in 1985. New York City experienced an epidemic

10. JAMES P. LYNCH & WILLIAM J. SABOL, DID GETTING TOUGH ON CRIME PAY? (1997); Bruce Western et al., *The Labor Market Consequences of Incarceration*, 47 CRIME & DELINQ. 410, 424 (2001).

11. SARA McLANAHAN & GARY SANDEFUR, GROWING UP WITH A SINGLE PARENT: WHAT HURTS, WHAT HELPS 136-37 (1994); Hagan & Dinovitzer, *supra* note 3, at 126-28; Sara McLanahan & Larry Bumpass, *Intergenerational Consequences of Family Disruption*, 94 AM. J. SOC. 130, 142-43 (1998).

12. Richard Curtis, *The Improbable Transformation of Inner-City Neighborhoods: Crime, Violence, Drugs and Youth in the 1990s*, 88 J. CRIM. L. & CRIMINOLOGY 1233, 1263-67 (1998). See generally ROBERT JACKALL, WILD COWBOYS: URBAN MARAUDERS AND THE FORCES OF ORDER (1997).

13. Jeffrey Fagan & Tracey Meares, *Punishment, Deterrence and Social Control: The Paradox of Punishment in Minority Communities*, PUNISHMENT & SOC'Y (forthcoming 2003); Daniel Nagin, *Criminal Deterrence Research at the Outset of the Twenty-First Century*, 23 CRIME & JUST.: REV. RES. 1, 33-36 (1999); Christopher Uggen & Jeff Manza, *Democratic Contraction? Political Consequences of Felon Disenfranchisement in the United States*, 67 AM. SOC. REV. 777 (2002). See generally JOHN JACKSON, HARLEMWORLD: DOING RACE AND CLASS IN CONTEMPORARY BLACK AMERICA (2001).

14. Mark S. Granovetter *The Strength of Weak Ties*, 78 AM. J. SOC. 1360, 1371-72 (1973); see MARK S. GRANOVETTER, GETTING A JOB: A STUDY OF CONTACTS AND CAREERS 131-38 (1974).

15. Granovetter, *supra* note 14, at 131-38.

of drugs and serious violence that peaked over a decade ago, and then fell steeply in the ensuing years.¹⁶ Rates of incarceration spiked sharply after 1985 as crime rates rose.¹⁷ Higher incarceration rates persisted through the 1990s, declining far more slowly than the sharply falling crime rates.¹⁸ We show that the use of incarceration, especially prison, seems to have differential effects across the City's neighborhoods and police precincts, and that the overall excess of incarceration rates over crime rates seems to be concentrated among non-white males living in the City's poorest neighborhoods.

We then show that neighborhoods with high rates of incarceration invite closer and more punitive police enforcement and parole surveillance, contributing to the growing number of repeat admissions and the resilience of incarceration, even as crime rates fall. Incarceration begets more incarceration, and incarceration also begets more crime, which in turn invites more aggressive enforcement, which then re-supplies incarceration. These dynamics spiral over time in a reciprocal dynamic that at some tipping point is likely to reach equilibrium.¹⁹ It is, quite literally, a vicious cycle. The dynamic becomes self-sustaining and reinforcing, and continues even as externalities such as labor market dynamics or population structure undergo significant change, as well as in the face of declining crime rates and receding drug epidemics.

The Essay then examines social, economic, legal, and political mechanisms through which spatial concentration transforms a spike in incarceration from an acute external shock into an enduring internal feature of the neighborhood fabric, a dynamic process that then persists regardless of law or policy, and well in excess of the supply of criminals. The constant rearrangement of social networks through removal and return of prisoners becomes a systemic part of neighborhood life and its social norms. Incarceration creates a supply of both crime and more incarceration. We illustrate the contributions of law and policy to incarceration dynamics that persist even in eras of declining crime. When high incarceration rates are internalized into the ecology of small, homogeneous neighborhoods, it adversely affects the economic fortunes, political participation, family life, and normative orientation of people liv-

16. Jeffrey Fagan et al., *Declining Homicide in New York: A Tale of Two Trends*, 88 J. CRIM. L. & CRIMINOLOGY 1277, 1277 (1998).

17. *Id.* at 1285-86.

18. *Id.*

19. *See infra* Part III.A.

ing in the social context of imprisonment and its aftermath. The Essay concludes with a discussion of how this concentration distorts the relationships between citizens and the law, both to those living in areas affected by these dynamics, and those outside whose views of these neighborhoods and their residents influence their policy preferences.

I. CRIME AND INCARCERATION IN NEW YORK CITY

Beginning in the 1980s and continuing today, the number of persons incarcerated in the United States increased massively, incapacitating many criminals and increasing the risks of punishment for those still active.²⁰ Between 1975 and 1989, the total annual prison population of the United States nearly tripled, growing from 240,593 to 679,623 inmates in custody, an increase of 182 percent.²¹ The trend continued uninterrupted through 1996, when the prison population rose to 1,138,984.²² Put another way, the incarceration rate rose from about 145 per 100,000 population in 1980, to 445 per 100,000 in 1997.²³ Both the likelihood of being committed to prison, and the average sentence length once committed, increased dramatically over that time.²⁴

Incarceration trends in New York City and State have followed similar trends.²⁵ New York State's prison population—approximately seventy percent of State inmates come from New York City—is now nearly 70,000, up from 55,000 in 1990.²⁶ And New York City's average daily jail inmate population was 17,897 in 1999, which is only slightly lower than the 1990 population of 19,643.²⁷

20. See Blumstein & Beck, *supra* note 1; Jacqueline Cohen & Jose Canela-Cacho, *Incarceration and Violent Crime*, in 4 UNDERSTANDING AND PREVENTING VIOLENCE 296, 298-307 (Albert J. Reiss, Jr. & Jeffrey A. Roth eds., 1994); Steven Levitt, *The Effect of Prison Population Size on Crime Rates: Evidence from Prison Overcrowding Litigation*, 111 Q. J. ECON. 319, 319 (1996).

21. See BUREAU OF JUSTICE STATISTICS, U.S. DEP'T OF JUSTICE, CORRECTIONAL POPULATIONS IN THE UNITED STATES, NCJ-170013 (1999).

22. See Blumstein & Beck, *supra* note 1, at 22 tbl. 1 (citing data from the Bureau of Justice Statistics and the Bureau of the Census (various years)).

23. *Id.* at 18. This includes both state and federal prisoners, but excludes persons in county jails.

24. *Id.*

25. See *infra* note 26 and accompanying text.

26. In 1987, seventy-five percent of all New York State prison admissions originated from cases disposed in New York City, sixty-nine percent in 1990, and sixty-nine percent in 1994. NYS Division of Criminal Justice Services ("DCJS") and National Corrections Reporting Program ("NCRP").

27. New York City Department of Correction ("DOC") website, at <http://www.ci.nyc.ny.us/html/doc/home.html> (last visited July 15, 2003).

Rates of incarceration in New York City have been largely unaffected by the City's dramatic declines in crime.²⁸ Since 1990, when crime rates began to drop, the number of people receiving sentences of incarceration in the city—either prison or jail—has hovered between 78,000 and 96,000.²⁹ In fact, the number of people sentenced to incarceration in 1990—the height of the City's most recent crime wave—is comparable to the number in 1997 (92,261 and 93,141, respectively), despite the fact that by 1997 crime counts were at an eight year low.³⁰ Between 1990 and 1997, the city experienced a fifty percent decline in the number of index crimes, yet the number of prison sentences imposed declined by only nineteen percent.

The increase in incarceration may be attributed to aggressive enforcement of drug laws, especially street-level enforcement, resulting in large numbers of felony arrests of retail drug sellers.³¹ For over a decade, drug-related offenses have accounted for an increasing proportion of prison admissions: from just twelve percent of all New York State prison admissions in 1985, to thirty-one percent in 1990, to thirty-eight percent in 1996.³² Despite the dramatic decreases in crime in New York City,³³ drug-related arrests have continued to increase,³⁴ and continue to incarcerate large numbers of

28. Over the past decade, New York City has experienced a steady decline in crime rates that ranks among the largest decreases of any American city. The total number of homicides dropped from a record high of 2,262 in 1990 to 606 in 1998—the lowest homicide count since 1964. As the number of homicides declined steadily, other serious crime also decreased, but not at the same rate. Overall, the total number of index crimes in New York City dropped by fifty percent between 1990 and 1997, and violent crimes dropped by forty-seven percent. Felony arrests dropped by only twelve percent and misdemeanor arrests increased by seventy-three percent in the same period, however, despite the dramatic decrease in overall crime numbers.

29. Division of Criminal Justice Services, New York State, Selection for Criminal Justice Indicators, at <http://criminaljustice.state.ny.us/crimnet/ojsa/areastat/areast.htm> (last visited July 15, 2003).

30. *Id.*

31. See Blumstein & Beck, *supra* note 1, at 30; see also MICHAEL TONRY, MALIGN NEGLECT: RACE, CRIME, AND PUNISHMENT IN AMERICA 81 (1995).

32. BUREAU OF JUSTICE STATISTICS, U.S. DEP'T OF JUSTICE, NATIONAL CORRECTIONS REPORTING PROGRAM, 1985 (1997) [hereinafter NATIONAL CORRECTIONS REPORTING PROGRAM, 1985]; BUREAU OF JUSTICE STATISTICS, U.S. DEP'T OF JUSTICE, NATIONAL CORRECTIONS REPORTING PROGRAM, 1990 (1997) [hereinafter NATIONAL CORRECTIONS REPORTING PROGRAM, 1990]; BUREAU OF JUSTICE STATISTICS, U.S. DEP'T OF JUSTICE, NATIONAL CORRECTIONS REPORTING PROGRAM, 1996 (1998) [hereinafter NATIONAL CORRECTIONS REPORTING PROGRAM, 1996].

33. ANDREW KARMEN, NEW YORK MURDER MYSTERY 1-13 (2000); Fagan et al., *supra* note 16, at 1277.

34. From 1990 to 1997, misdemeanor drug arrests in New York City were steadily increasing—accounting for twenty-seven percent of all misdemeanor arrests in 1990

New York City residents—11,600 entered New York State prisons on drug-related offenses in 1995, compared with 9,345 in 1990.³⁵ Because these inmates are likely to serve longer sentences, drug offenders comprised a growing proportion of the City's and State's incarcerated population.

Table 1 shows the dynamics of crime, enforcement, prosecution, and sentencing that have contributed to incarceration growth beginning in 1985, the year before the onset of the crack epidemic in New York, and continuing through 1997, when crime had declined sharply in the City.³⁶ The table shows that the number and rate of prison sentences (per arrest and per conviction) rose at a faster pace than did crime from 1985 through 1990, and then declined more slowly than did crime from 1991 through 1997.³⁷ Reported index crimes, including violent felonies and major property crimes, rose by nearly eighteen percent from 1985 through 1990, but felony arrests rose by nearly forty percent and felony prosecutions grew by eighty percent during this period.³⁸

Drug cases accounted for the majority of the increase in prosecutions, perhaps motivated by the increased opportunities for incarceration created by legislation lowering the thresholds for felony drug convictions and mandating prison sentences for "predicate" felony offenders with prior felony convictions.³⁹ Even as convic-

to thirty-one percent in 1997. During the same period, felony drug arrests remained relatively stable—accounting for approximately thirty-two percent of all felony arrests. Division of Criminal Justice Services, New York State, Criminal Justice Indicators By Percent Change New York City: 1990-1997, at <http://criminaljustice.state.ny.us/crimnet/ojsa/areastat/areast.htm> (last visited July 15, 2003).

35. *Id.*

36. New York City's crime decline has been well documented and studied extensively. See, e.g., KARMEN, *supra* note 33, at 1233-38; GEORGE L. KELLING & WILLIAM H. SOUZA JR., DO POLICE MATTER? AN ANALYSIS OF THE IMPACT OF NEW YORK CITY'S POLICE REFORMS 1 (2001), available at http://www.manhattan-institute.org/cr_22.pdf (last visited July 15, 2003); CURTIS, *supra* note 12, at 1241-42; FAGAN et al., *supra* note 16, at 1277. There are disagreements over the sources of the decline. Curtis attributes the decline to shrinking demand for drugs, while Karmen attributes the decline to the interaction of social forces including employment, demography, and policing strategy. Fagan et al. view the crime decline as indexed to an epidemic of gun violence that receded sharply after 1991. Kelling and Souza see the crime decline as the result of aggressive policing of social and physical disorder, which in turn had prophylactic effects on crime rates.

37. See Tbl. 1.

38. See Tbl. 1.

39. Susan N. Herman, *Measuring Culpability by Measuring Drugs? Three Reasons to Re-evaluate the Rockefeller Drug Laws*, 63 ALB. L. REV. 777, 788 (2000); Michael Z. Letwin, *Report from the Front Line: The Bennett Plan, Street-Level Drug Enforcement in New York City, and the Legalization Debate*, 18 HOFSTRA L. REV. 795, 821 (1990); Lisa R. Nakdai, *Are New York's Rockefeller Drug Laws Killing the Messenger*

[illegible]

tions remained relatively stable, prison sentences nearly doubled during that time, from 10,802 to 20,420.⁴⁰ It appears, then, that sentencing accounted for the growth in imprisonment during this time, with prison sentences growing at a faster rate than the crime rate, the felony complaint rate, and the rate of convictions. In general, the period of 1985 to 1990 saw sharp increases in index crimes, felony arrests, prosecutions, and incarceration. Index crimes, felony arrest, and prosecutions receded dramatically, however, after 1990. Incarceration did not follow this dramatic recession.

The effects of the predicate felony law can be seen in Table 2. We analyzed the prior criminal records of a twenty-five percent sample of prison admissions of convicted offenders from New York City over five waves from 1985-96.⁴¹ The percent of new prison admissions with prior arrests, prior convictions, and prior jail sentences rose only slightly over the period.⁴² For example, forty-eight percent of prison admissions in 1985 had prior jail sentences; by 1996, fifty-five percent had prior jail sentences. New prison admissions with prior prison sentences, however, rose nearly fifty percent from 1985 to 1996, from twenty-six percent in 1985, to thirty-nine percent in 1996. Over time, the prison admissions were drawn from the ranks of previously incarcerated prisoners. The recycling of prisoners was a driving force in maintaining high prison populations even in an era of sharply declining crime rates.

A. Drugs and Incarceration

The increase in incarceration nationally has been attributed in large part to aggressive enforcement of drug laws, especially street-level enforcement resulting in large numbers of felony arrests of retail drug sellers.⁴³ For over a decade, drug-related offenses have accounted for an increasing proportion of prison admissions: from just twelve percent of all New York State prison admissions in 1985, to thirty-one percent in 1990, to thirty-eight percent in 1996.⁴⁴

for the Sake of the Message?, 30 HOFSTRA L. REV. 557, 560 (2001); *see infra* Part II.A, on predicate felon sentencing laws.

40. *See* Tbl. 1.

41. *See infra* Part II.A, for a discussion of the sampling and data collection methods.

42. *See* Tbl. 1.

43. *See* Blumstein & Beck, *supra* note 1, at 30; *see also* TONRY, *supra* note 31, at 97-104.

44. NATIONAL CORRECTIONS REPORTING PROGRAM, 1985, *supra* note 32; NATIONAL CORRECTIONS REPORTING PROGRAM, 1990, *supra* note 32; NATIONAL CORRECTIONS REPORTING PROGRAM, 1996, *supra* note 32.

TABLE 2 PROPORTION OF PRISON ADMISSIONS BY PRIOR CRIMINAL JUSTICE INVOLVEMENT, 1985-96				
Year	Prior Arrests	Prior Convictions	Prior Jail Sentences	Prior Prison Sentences
1985	.77	.67	.48	.26
1987	.77	.68	.51	.24
1990	.78	.68	.53	.26
1993	.80	.71	.55	.38
1996	.80	.72	.55	.39
Source: New York State Division of Criminal Justice Services, Twenty-Five Percent Sample of Prison Admissions over Five Waves, 1985-96				

Despite the dramatic decreases in crime in New York City,⁴⁵ drug-related arrests have continued to increase,⁴⁶ and continue to incarcerate large numbers of New York City residents—11,600 entered New York State prisons on drug-related offenses in 1995, compared with 9,345 in 1990.⁴⁷ Because these inmates are likely to serve longer sentences, drug offenders make up an increasing proportion of the City's and State's incarcerated population.

Table 1 shows that from 1985-97, most of the growth in felony arrest and prosecution was for drug offenses, which were the primary targets of sentencing legislation during this time.⁴⁸ Felony drug arrests more than doubled during this period, while misdemeanor drug arrests remained stable. Table 1 also shows that felony drug prosecutions rose by nearly 250 percent from 1985 to 1990, a pace twice as great as the rise in felony drug arrests. Although convictions rose far more slowly during this time, the rate of prison sentences per one hundred convictions rose from 7.2 to 12.8,⁴⁹ an increase of more than seventy-five percent. From 1990-97, this rate declined by 31.3 percent while the crime rate in New York City fell by half. Since drug offenses accounted for much of the growth in prosecution, it is safe to assume that the rise in prison

45. KARMEN, *supra* note 33, at 1-14; Fagan et al., *supra* note 16, at 1277.

46. From 1990 to 1997, misdemeanor drug arrests in New York City were steadily increasing—accounting for twenty-one percent of all misdemeanor arrests in 1990 to thirty-one percent in 1997. During the same period, felony drug arrests remained relatively stable—accounting for approximately thirty percent of all felony arrests. Division of Criminal Justice Services, New York State, Criminal Justice Indicators By Percent Change New York City: 1990-1997, at <http://criminaljustice.state.ny.us/crimnet/ojsa/areastat/areast.htm> (last visited July 15, 2003).

47. *Id.*

48. See Tbl. 1

49. See Tbl. 1

sentences per conviction was due mainly to the growth of drug convictions.

Several features of drug law and policy contributed to the disproportionate share of drug offenders among the newly incarcerated. First, New York implemented a series of intensive street-level enforcement initiatives during this time, each focusing on aggressive buy-and-bust tactics to snare drug sellers and some buyers. One initiative was Operation Pressure Point ("OPP"), launched in the mid-1980s, focusing on outdoor retail drug markets in the Lower East Side neighborhood of Manhattan.⁵⁰ Following the onset of the crack epidemic, a second initiative replicated the Pressure Point strategy in neighborhoods across the City.⁵¹ In 1988, a relatively small Crack Squad within the Narcotics Division of the New York City Police Department ("NYPD") was expanded to become the Tactical Narcotic Teams ("TNT").⁵² TNT teams were deployed mainly in minority neighborhoods where the visible crack trade made an inviting target that produced thousands of felony drug arrests.⁵³ These were among the poorest neighborhoods in the City, with median incomes well below the poverty line, and areas where non-whites lived under conditions of intense racial segregation.⁵⁴

Second, drug sentencing laws were amended during this time to mandate longer sentences for possession of even small amounts of cocaine.⁵⁵ By 1987, the New York State legislature had enacted broad changes in sentencing for many drug offenses, including mandatory incarceration and lengthened sentences for even small amounts of drugs.⁵⁶ "Predicate felony" laws passed during this

50. LYNN ZIMMER, OPERATION PRESSURE POINT 4-7 (occasional paper of N.Y.U. Center for Crime and Justice 1987).

51. MICHELE SVIRIDOFF ET AL., VERA INST. OF JUSTICE, THE NEIGHBORHOOD EFFECTS OF STREET-LEVEL DRUG ENFORCEMENT: TACTICAL NARCOTICS TEAMS IN NEW YORK 11-40 (1992).

52. *Id.*

53. Jeffrey Fagan & Ko-lin Chin, *Initiation into Crack and Cocaine: A Tale of Two Epidemics*, 16 CONTEMP. DRUG PROBS. 579, 608-09 (1989).

54. Sviridoff et al., *supra* note 51.

55. SVIRIDOFF ET AL., *supra* note 51; Fagan & Chin, *supra* note 53; Letwin, *supra* note 39, at 804 n. 57; see STEVEN BELENKO, CRACK AND THE EVOLUTION OF ANTI-DRUG POLICY 115-54 (1993).

56. See N.Y. PENAL LAW § 220 (McKinney 1998); WILLIAM C. DONNINO, PRACTICE COMMENTARIES (McKinney 1989). With respect to cocaine, in 1988, "criminal possession of a controlled substance in the fifth degree" was amended to add the knowing and unlawful possession of "five hundred milligrams or more of cocaine." L. 1988, c. 178; N.Y. PENAL LAW § 220.05(5). The purpose of the amendment was to take into account the widely-used form of cocaine known as "crack." Crack is a concentrated form of cocaine which is exceptionally potent and addictive. The desired effect from the use of the crack may be obtained by the use of a substantially smaller

time also contributed to the rise in imprisonment by mandating prison sentences for felony offenders with any prior felony conviction.⁵⁷ In addition to the already harsh, proscriptive, and inflexible “Rockefeller Drug Laws,”⁵⁸ the predicate felony statutes, in practice, elevated the prison population by indexing the incarceration rate to the arrest rate, thus denying judicial discretion in sentencing repeat offenders.⁵⁹ The effects of the predicate felony statutes landed most heavily on both drug offenders and violent offenders.⁶⁰ The intersection of these policies, fueled by calls for ever tougher enforcement of penalties against drug dealers, was the en-

quantity than would be required to obtain the same effect from the traditional form of cocaine. Thus, crack is generally sold to users in vials containing a small quantity of the drug. To the extent the distinction between misdemeanor and felony possession rests philosophically on a distinction between minor use and either significant use or the likelihood that the possessor was selling or sharing the drug, the aggregate weight standard for cocaine was deemed unrealistically high as the threshold for liability for felony possession of crack. Thus, criminal possession of a controlled substance in the fifth degree, a class D felony, was amended to encompass the possession of 500 milligrams or more of cocaine. In part because of the chemical properties of crack, and because of a growing belief that liability for possession of a controlled substance should be based solely on the quantity of the drug possessed, liability for the possession of the 500 milligrams of cocaine is premised on the “pure” or actual weight of the drug, not the aggregate weight of the substance containing the drug. The remaining crimes of criminal possession and sale of cocaine, however, utilize the aggregate standard. Cf. N.Y. PENAL LAW §§ 220.06(5), .09(1), .16(12), .18(1), .21(1).

57. See *id.* § 70.06(1). The law defines a predicate felony offender as a second violent felony offender whose previous felony conviction occurred within the past ten years. Prior felony convictions which resulted in a suspended sentence, a probation sentence, a sentence of conditional or unconditional discharge, or any other sentence, were considered eligible for predicate felony sentencing upon a second felony conviction. Sentencing for predicate felons reverts to the minimum standards

58. *Id.* §§ 220.00-.65. The 1973 Act distinguished between degrees of possession and sale by weight of the prohibited substance. This was a departure from previous laws that classified only certain drugs such as heroin, morphine, and cocaine into degrees, which were differentiated by the quantity of the preparation, compound, mixture, or substance containing the drug. Under this system, drug offenses are graded according to the dangerousness and the quantity of the drug involved. Dangerousness of a drug is determined by consulting detailed schedules of controlled substances, with the drugs considered most harmful listed in Schedule I, and those classified as the least harmful in Schedule V. The 1973 Act made the possession or sale of a specified amount of a broader variety of drugs a felony, thus, three categories of drug possession and three categories of sale required mandatory imprisonment carrying minimum ranges of one year to life (A-III), six years to life (A-II), or fifteen years to life (A-I).

59. See, e.g., Gerard E. Lynch, *Sentencing Eddie*, 91 J. CRIM. L. & CRIMINOLOGY 547, 550-51 (2001) (presenting a rich case study illustrating the tensions between the intent and impact of structured sentencing laws that deny judges the latitude to weigh culpability in the context of complex life histories of repeat drug offenders).

60. Herman, *supra* note 39, at 777-79.

engine behind New York's historic expansion of its prison population during this time.⁶¹

The increasing share of prison admissions for drug crimes can be seen in Figure 1. We analyzed the conviction charge for a twenty five percent sample of prison admissions of convicted offenders from New York City over five waves from 1985-96.⁶² The percent that were convicted on drug sale charges nearly tripled from 1985 to 1996: from 16.9 to 47.9 percent.⁶³ For drug possession, the increase was more than double: from 5.4 to 11.2 percent.⁶⁴ The proportion convicted for violent crimes declined by more than half during the same period: from 47.5 to 21.5 percent. The decline for property crimes was also nearly fifty percent. Drug enforcement was the engine for the growth and then the stability of incarceration in New York City for over a decade, even as other felony crime rates declined sharply. The durability of drug enforcement as a source of prison populations over time and across distinctly different crime "eras" suggests that just as incarceration shifts from an externality to an endogenous feature of neighborhood social organization, so too does drug enforcement become an endogenous feature of the social organization and political economy of law enforcement.

B. Incarceration Growth and Declining Crime

Table 1 shows that even as crime began its historic decline in New York City in 1991 and accelerated by 1994, drug arrests remained at their 1990 levels, and convictions for drug sale and possession continued to fuel incarceration rates. From 1990 to 1995, reported index crimes declined by nearly forty percent: from 711,556 to 442,532. Within two more years, index crimes dropped further to 356,573, an overall decline of nearly fifty percent from its peak in 1990. Yet, felony arrests declined by twelve percent, only a fraction of the decline in crime.

The engine for the growth and stability of the incarceration rate was the replacement of drug enforcement programs such as OPP and TNT with new initiatives that embedded politically popular theories of Zero Tolerance and Order Maintenance Policing⁶⁵ into

61. Letwin, *supra* note 39, at 803-04.

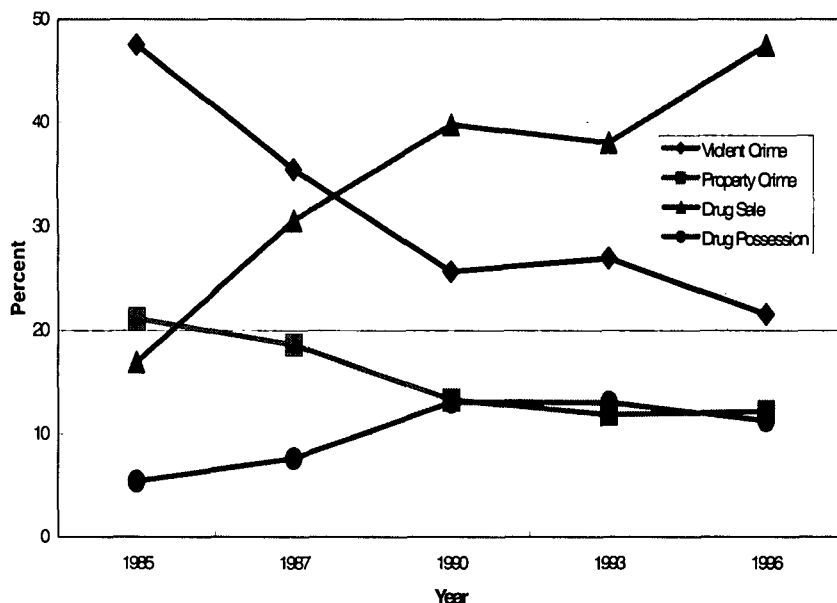
62. See *infra* Part II.A., for a description of research methods.

63. See *infra* Fig. 1.

64. See *infra* Fig. 1.

65. Jeffrey Fagan & Garth Davies, *Street Stops and Broken Windows: Terry, Race, and Disorder in New York City*, 28 FORDHAM URB. L.J. 457, 467 (2000); Debra Livingston, *Police Discretion and the Quality of Life in Public Places: Courts, Communi-*

FIGURE 1.
PERCENT OF PRISON ADMISSIONS BY OFFENSE TYPE, NEW YORK CITY, 1985-86



Source: New York State, Division of Criminal Justice Services,
 Twenty-Five Percent Sample of Prison Admissions, various years.

drug enforcement. Drug arrests remained at a persistently high level, even as arrests for other crimes, including violent felonies, declined sharply.⁶⁶ Policy preferences dictated this course of action. For example, Operation Condor, launched in 1999, was an initiative of the NYPD that used overtime pay to motivate police

ties, and the New Policing, 97 COLUM. L. REV. 551, 556 n.14 (1997); Sarah E. Waldeck, *Cops, Community Policing, and the Social Norms Approach to Crime Control: Should One Make Us More Comfortable with the Others?*, 34 GA. L. REV. 1253, 1273 (2000); see Judith Greene, *Zero-Tolerance: A Case Study of Police Policies and Practices in New York City*, 45 CRIME & DELINQ. 171, 173 (1999).

[Bratton quickly] introduced new management tools, techniques and technology, . . . and moved quickly to decentralize authority and to wrest decision-making power away from headquarters brass and move it out to the precinct and borough commands. He broke down a maze of bureaucratic barriers—pushing, prodding, and (when necessary) replacing personnel. He was able to integrate many of the police functions previously held by specialized units to empower patrol officers to move directly to address drug and gun crimes in the neighborhoods they serve.

Id.; see also ELI SILVERMAN, *NYPD BATTLES CRIME: INNOVATIVE STRATEGIES IN POLICING* 153-54 (1999).

66. See *supra* note 63 and accompanying text.

officers to use both buy-and-bust tactics and reverse stings to make drug arrests.⁶⁷ At its height, the program paid for an additional 1,000 officers on the street each day.⁶⁸ As in other zero-tolerance policies, Condor was designed to detect more serious offenders among drug purchasers and sellers who were caught in Condor's stings.⁶⁹

Operation Condor produced tens of thousands of drug arrests across the City each year, but its tactics raised complaints from minority citizens about its racial disproportionality, and the excessive use of the full criminal justice process (including the use of pretrial detention rather than summons) for low-level drug offenders whose crimes were mostly non-violent and who posed a minimal public safety threat.⁷⁰ Large numbers of individuals were brought in on drug charges ranging from misdemeanor marijuana possession to possession of controlled substances (powder cocaine, crack, or heroin).⁷¹ The death of Patrick Dorismond, an unarmed citizen approached by Condor officers who tried to sell him marijuana, during an Operation Condor arrest, heightened racial tensions between minority citizens and the police.⁷²

Accordingly, the felony arrest rate per index crime rose by seventy-five percent from 1990 to 1997, a product of policy preference for aggressive law enforcement and narrow prosecutorial discretion that led to formal and full criminal processing for nearly all arrests.⁷³ While prosecutions declined by nearly a third during this period, the rate of convictions per arrest rose by more than forty-five percent.⁷⁴ Thus, as the supply of arrestees and felony defendants grew smaller, the number of persons sentenced to prison declined by 19.2 percent from 1990 to 1997.⁷⁵ The imbalance in declines—incarceration declining more slowly than the crime

67. William Rushbaum, *Police Suspend Extra Patrols for 10 Days*, N.Y. TIMES, Oct. 12, 2000, at B1.

68. *Id.*

69. *Id.*

70. *Id.*; see also Christopher Ketcham, *Roach Motel*, SALON, Oct. 17, 2002, at http://archive.salon.com/mwt/feature/2002/10/17/jail_time/index_np.html (last visited July 15, 2003).

71. Rushbaum, *supra* note 67, at B1.

72. Jeffrey Rosen, *Excessive Force: Why Patrick Dorismond Didn't Have To Die*, NEW REPUBLIC, Apr. 10, 2000, at 24.

73. For a description of this type of processing, see Ketcham, *supra* note 70; see also WILLIAM BRATTON & PETER KNOBLER, TURNAROUND: HOW AMERICA'S TOP COP REVERSED THE CRIME EPIDEMIC 224-30 (1998). Full processing included booking, fingerprinting, and detention, in lieu of issuing desk appearance tickets.

74. See Tbl. 1.

75. See Tbl. 1.

rate—again reflects the narrowing of discretion in sentencing and the continuing rise in incarcerations per felony prosecution.

II. EMPIRICAL RESEARCH

Here, we present empirical analyses of the impact of incarceration on crime and subsequent incarceration at two levels of aggregation: police precinct and neighborhood. Neighborhood is important in the social regulation of both legal and illegal behavior;⁷⁶ also because of this, it is the locus at which criminogenic factors exert their influence on the everyday lives of neighborhood residents.⁷⁷ Police precinct is also relevant and important because the social organization of law enforcement functions at this level. Policies are implemented and managed within precincts, and citizens interact with police assigned to specific precincts.⁷⁸ Accordingly, we assess the reciprocal effects of crime and incarceration at both the level of neighborhood and police precinct.

The research proceeds in three stages. First, we show graphically the changing patterns and concentration of incarceration first in police precincts and then in neighborhoods. Next, we estimate statistical models to assess the effects of incarceration on crime and subsequent incarceration over time. The models estimate the endogeneity of incarceration and its effects on neighborhood crime rates in five waves over a twelve year period beginning in 1985. Incarceration patterns and practices affect neighborhoods by both removing and returning individuals to the community. In some neighborhoods, it is not uncommon for certain residents to cycle between the prison system and their communities several times.⁷⁹ We then elaborate the components of this dynamic by including law enforcement measures as factors that produce the supply of persons for incarceration at each level of aggregation. Accordingly, we examine how law-enforcement patterns—specifically

76. Robert J. Sampson et al., *Neighborhoods and Violent Crime: A Multilevel Model of Collective Efficacy*, 277 SCIENCE 918, 918 (1997); Robert J. Sampson & Stephen W. Raudenbusch, *Systemic Social Observation of Public Spaces: A New Look at Disorder in Urban Neighborhoods*, 105 AM. J. SOC. 603, 604 (1999).

77. See Sampson et al., *supra* note 76, at 918; see also RALPH B. TAYLOR, BREAKING AWAY FROM BROKEN WINDOWS 7-17 (2000); Ralph Taylor & Jeannette Covington, *Neighborhood Changes in Ecology and Violence*, 26 CRIMINOLOGY 553, 554-57 (1988).

78. See BRATTON & KNOBLER, *supra* note 73, at 229-30.

79. D.J. Siltan, Note, *U.S. Prisons and Racial Profiling: A Covertly Racist Nation Rides a Vicious Cycle*, 20 LAW & INEQ. 53, 65 (2002).

those aimed at combating drug-related crime—contribute with social structural factors to influence patterns of incarceration.

A. Research Design

We constructed a longitudinal panel of incarceration and crime in New York City police precincts and census tracts for the period from 1985 to 1996. We obtained a twenty-five percent sample of all individuals sentenced to prison and a five percent sample of all jail sentences for cases with dispositions in New York City for the years 1985, 1987, 1990, 1993, and 1996. This yielded an annual sample of prison sentences of 2,000 to 4,000 individuals, and an annual sample of jail sentences of 3,000 to 4,000 individuals.

Records of persons admitted to prisons or jails were geocoded by residential address of the incarcerated person. Geocoded cases and crime counts were aggregated to each spatial unit. Rates of crime and incarceration were then computed for each spatial unit. Census tracts were aggregated into seventy-five police precincts and 295 neighborhoods, spatial units constructed based on a schema, developed by Professors Kenneth Jackson and John Manbeck,⁸⁰ of interviews with neighborhood residents and physical examination of naturally occurring neighborhood boundaries.⁸¹ The final sample of neighborhoods is 276, after eliminating areas with no population, such as parks and heavily industrialized areas.⁸²

We use pooled data methods to establish neighborhood-year and precinct-year data points⁸³ to approximate a linear panel. Pooling the data for each aggregation unit across years has the advantage of increasing the sample size for each model to $N(T-1)$ cases, where N represents the total number of neighborhoods (or precincts), and T represents the number of years of data in the model. With $N=75$ police precincts, pooling the data over years greatly increases the

80. KENNETH T. JACKSON & JOHN B. MANBECK, *THE NEIGHBORHOODS OF BROOKLYN* xii-xvi (1998).

81. See generally Infoshare Online, at <http://www.infoshare.org> (last visited July 15, 2003), for neighborhood indicators and boundary maps depicting these relatively new spatial units.

82. Each neighborhood comprises several census tracts. Jackson and Manbeck drew these boundaries based on an exhaustive process of interviews with local residents and their own observation of physical boundaries. The final sample of neighborhoods is 276, after elimination of areas with no population, such as parks and heavily industrialized areas. See Infoshare Online, *supra* note 81, for neighborhood indicators and boundary maps depicting these relatively new spatial units.

83. LOIS W. SAYRS, *POOLED TIME SERIES ANALYSIS* 7-79 (1989).

sample size.⁸⁴ This method assumes, however, that the variance over the pool, in this case across waves, is constant for the incarceration rates in each neighborhood. This is likely not the case here. In order to account for variation over time, we treat time as both a fixed effect for each year to represent the variance unique to each cross-section, or year, and also as a random effect to estimate specific year-by-year changes. We include interactions of each predictor by time to further specify the role of time in the series.

B. The Spatial Concentration of Incarceration in New York

We begin by showing the spatial concentration of incarceration in New York City neighborhoods, and its changes over time. Emerging research in a few cities shows that incarceration has been spatially concentrated in specific neighborhoods.⁸⁵ In New York City, arrests and incarcerations, both for drug and non-drug crimes, have long been spatially concentrated in the poorest neighborhoods.⁸⁶ A study completed more than a decade ago, in the midst of the City's incarceration run-up from the mid-1980s, showed that just seven of New York City's fifty-five community board districts accounted for over seventy-two percent of all the State's prisoners.⁸⁷ The City's patterns of racial residential segregation⁸⁸ all but ensures that the effects of racially-skewed street-level police enforcement will translate into racially and spatially concentrated incarceration in the City's poorest minority neighborhoods.

To illustrate the spatial concentration of incarceration and its persistence over time in specific areas of New York, we drew maps showing the concentration of incarceration over time. Figure 2 shows the concentration of incarceration by police precincts at three points in time: 1985, 1990, and 1996. Figure 3 shows the

84. There are 276 neighborhoods, but we treat these similarly to facilitate comparisons across models.

85. LYNCH & SABOL, *supra* note 10; Clear et al., *supra* note 6, at 46.

86. Francis X. Clines, *Ex-inmates Urge Return to Areas of Crime To Help*, N.Y. TIMES, Dec. 23, 1992, at A1.

87. *Id.* The seven neighborhoods are Community Districts, which are fifty-five administrative units responsible for channeling community views into citywide policymaking. The seven areas are: the Lower East Side, the South Bronx, Harlem, Brownsville, Bedford-Stuyvesant, East New York, and South Jamaica. According to the Department of City Planning, these were among the poorest areas of the City in 1990. See New York City Department of City Planning, Community District Profiles, at <http://www.ci.nyc.ny.us/html/dcp/html/lucds/cdstart.html> (last visited July 15, 2003).

88. Frank F. DeGiovanni & Lorraine C. Minnite, *Patterns of Neighborhood Change*, in DUAL CITY: RESTRUCTURING NEW YORK 267, 290-94 (John H. Mollenkopf & Manuel Castells eds., 1991).

changes in incarceration rates per neighborhood for the same three time periods. Each spatial unit is meaningful in understanding the concentration of crime and enforcement. Neighborhoods reflect small social areas where the effects of local social and economic contexts are influential both on social control and on crime opportunities.⁸⁹ Precincts are the administrative unit at which enforcement policies are implemented and managed, and also where police units form small organizational cultures and knowledge of local crime problems and actors.⁹⁰

Both figures show that from 1985 to 1990, incarceration rates spread outward from a small number of precincts or neighborhoods, and also intensified in the areas with the highest incarceration rates five years earlier. By 1996, when crime rates had declined across neighborhoods and police precincts in the City, incarceration remained very high in most of the areas where it was highest in 1990, and declined only slightly in a few others.⁹¹ There were virtually no precincts nor neighborhoods with high incarceration rates in 1990 that became low incarceration areas by 1996.⁹² In some areas, such as Washington Heights (in the northwest part of Manhattan) and southeastern Queens, incarceration rates rose during this period of general crime decline.⁹³ Overall, both figures show the stability of incarceration from 1990 to 1996, a period during which felony crimes declined by nearly fifty percent.

C. The Growth and Concentration of Incarceration and Crime

To identify the factors that contribute to the growth or recession of incarceration, we completed several multivariate statistical models to show how incarceration in one year might predict incarceration rates in the following and later years. In these models, we controlled for population, crime and arrest rates, factors that produce the supply of persons eligible for incarceration. Next, we used a similar procedure to estimate the effects of incarceration in one year on crime in the next and later years. In these models, we treated jail and prison admissions as predictors of crime counts in precincts and homicide rates in neighborhoods.

89. Robert J. Sampson et al., *Assessing "Neighborhood Effects": Social Processes and New Directions in Research*, 28 ANN. REV. SOC. 443, 443 (2002).

90. *Id.*

91. See Figs. 2 & 3.

92. See Figs. 2 & 3.

93. See Figs. 2 & 3.

Incarceration counts, offset by the area population, are estimated as a function of the social and economic characteristics of the area plus drug arrest activity (lagged by one wave). Similarly, homicide counts, offset by the area population, are estimated as a function of the same neighborhood characteristics and crime contexts. We log the population, crime counts, and drug arrest measures. Separate models are estimated for jail, prison, and total incarceration. Because of the contributions of jail to subsequent imprisonment,⁹⁴ we include jail admissions as a predictor for the prison incarceration models.

We include drug arrests in both groups of models, although for different reasons. We include drug arrests in models of incarceration because they have been directly implicated in several studies and accounts as contributors to the magnitude and concentration of incarceration.⁹⁵ We include drug arrests in models of violence at the neighborhood level because of the strong and persistent evidence of the contribution of drug problems, including both consumption and marketing, to the increase in homicides and other violent crimes in New York City from 1986-97.⁹⁶

94. See Figs. 2 & 3.

95. Blumstein & Beck, *supra* note 1.

96. BELENKO, *supra* note 55, at 71-87. The concept of "contingent causation" moderates Goldstein's construction of "systemic violence" as violence associated with drug market disputes. See Paul Goldstein, *The Drugs/Violence Nexus: A Tripartite Conceptual Framework*, 15 J. DRUG ISSUES 493, 502-03 (1985); Paul J. Goldstein et al., *Drug-Related Homicide in New York: 1984 and 1988*, 38 CRIME & DELINQ. 459, 460 (1992); FRANKLIN E. ZIMRING & GORDON HAWKINS, *CRIME IS NOT THE PROBLEM: LETHAL VIOLENCE IN AMERICA* 148-49 (1997). Zimring and Hawkins introduced the concept of "contingent causation" to explain the difference between illicit drug marketing in Europe and in the United States. In Europe, illicit drug marketing rarely provokes systemic violence, except perhaps at the wholesale level of distribution. In street-level retail markets, such violence is virtually absent in most European countries. ZIMRING & HAWKINS, *supra*, at 148-49. The prevalence of "systemic violence" in American retail drug markets suggests that there are unique contextual conditions in which Americans buy and sell illicit drugs that are conducive to violence. See NORMAN ZINBERG, *DRUG, SET AND SETTING: THE BASIS FOR CONTROLLED INTOXICANT USE* 135-71 (1984); Jeffrey Fagan, *Interactions Among Drugs, Alcohol, and Violence: Dilemmas and Frameworks for Public Health Policy*, 12 HEALTH AFFAIRS 65 (1993) (discussing the role of social contexts in explaining the drugs-violence relationship); Graham C. Ousey & Matthew R. Lee, *Examining Race Differences in the Illicit Drug Market-Homicide Relationship*, 40 CRIMINOLOGY 73, 73 (2002); John K. Watters et al., *Causality, Context, And Contingency: Relationships Between Drug Abuse And Delinquency*, 12 CONTEMP. DRUG PROBS. 351, 360-64 (1985) (showing how the effects of certain drugs vary according to the social context and the makeup of the social group in which drug use take place).

1. *Model Estimation Procedures*

The general analytic model was a mixed effects repeated measures Poisson regression model with an overdispersion parameter adjustment and an autoregressive covariance structure.⁹⁷ Since the dependent variable in each analysis is a count of either incarceration or homicide events, each model is specified according to a Poisson distribution.⁹⁸ All effects except time are fixed; time is both a random effect to account for the panel structure of the data, and a fixed effect to account for the specific year within the panel. The latter estimation is important because of specific period effects nested in the model, including the sharp increase and decline in several of the predictors (especially crime) over the panel.

Time is specified in three ways. First, in order to determine the direct influence of the years comprising the study, time is treated as a fixed effect. Second, we estimated between spatial units (precincts, neighborhoods) in the dependent variables over time by treating time as random effect and interacting it with each of the predictors. Finally, we captured variation within tracts over time by also using time as a repeated measure. We use a first order autoregressive covariance structure to estimate within-unit change over time. All models were run using the GLIMMIX macro in the SAS Generalized Linear Model procedure.⁹⁹

2. *Data Sources and Measures*

Data sources for the research are shown in Table 3. In addition to the counts and locations of persons incarcerated in each year of the panel, we constructed a set of socio-economic indicia of neighborhood or precinct social structure from 1990 census data. We used 1990 since it is the mid-point of the time series for analysis of incarceration trends, and treat these factors as fixed effects when

97. R.C. LITTELL ET AL., SAS SYSTEM FOR MIXED MODELS 97, 445 (1996); Judith Singer, *Using SAS PROC MIXED to Fit Multilevel Models, Hierarchical Models, and Individual Growth Models*, 24 J. EDUC. & BEHAV. STAT. 323, 347-48 (1998).

98. A potential difficulty with the Poisson specification lies with the assumption that the variance is equal to the mean, a condition often encountered in event (count) data that are customarily overdispersed (where the variance exceeds the mean, as often is the case when there are large numbers of zeros in the observations). The overdispersion correction addresses this limitation. See, e.g., D. Wayne Osgood, *Poisson-Based Regression Analysis of Aggregate Crime Rates*, 16 J. QUANTITATIVE CRIMINOLOGY 21, 22-30 (2000); see also Amy V. D'Unger et al., *Gender Differences in Delinquent/Criminal Offending: Results from Mixed Poisson Regression Analyses*, 18 J. QUANTITATIVE CRIMINOLOGY 349, 358-59 (2002).

99. The procedure is PROC MIXED, applying the GLIMMIX macro for generalized linear models with mixed effects. See, e.g., Singer, *supra* note 97.

analyzing incarceration trends and effects. The variables represented constructs that were derived from an integration of several theories of crime within cities, including Bursik and Grasmick,¹⁰⁰ Sampson and Wilson,¹⁰¹ Taylor and Covington,¹⁰² and Krivo and Peterson.¹⁰³ Variables were computed at the census tract level, and then aggregated or recomputed for both the neighborhood and police precinct boundaries.

We use measures of crime as base rates of the supply of individuals available for incarceration. This measure varied depending on the spatial unit of analysis. For precinct-level analyses, the crime measure was the number of felony crimes reported by citizens to the New York City Police Department for each of the study years. For neighborhoods, we used homicide victimization as an alternate measure of crime, since the number of reported crimes is not available in New York City for such geographically smaller areas. Spatially disaggregated data on felony crimes and arrests are not made available to the public by the police department in New York City.¹⁰⁴ Thus, for neighborhoods we used the number of homicide victimizations, aggregated from census tracts, as a proxy of crime generally.¹⁰⁵

100. See generally ROBERT J. BURSİK, JR. & HAROLD G. GRASMICK, *NEIGHBORHOODS AND CRIME: THE DIMENSIONS OF EFFECTIVE COMMUNITY CONTROL* (1993).

101. See generally Robert J. Sampson & William Julius Wilson, *Toward a Theory of Race, Crime, and Urban Inequality*, in *CRIME & INEQUALITY*, *supra* note 5, at 37.

102. See generally Taylor & Covington, *supra* note 77.

103. See generally Lauren J. Krivo & Ruth D. Peterson, *The Structural Context of Homicide: Accounting for Racial Differences in Process*, 65 AM. SOC. REV. 547 (2000).

104. Beginning in 1994, the New York City Police Department launched a computerized crime mapping system, COMPSTAT. See BRATTON & KNOBLER, *supra* note 73, at 233-39. Crime data before that date cannot be located to specific addresses other than through manual geocoding of complaint and arrest records, or manual coding of the records of arrestees. Even after the launch of COMPSTAT, this data was unavailable for research purposes, but was used internally for strategic analysis of enforcement practices. One reason is that the spatial coordinates were obtained only for the initial crime complaint, which often was unverified at the time it was incorporated into the database. NYPD officials were reluctant to release this data, because many of the complaints had not been investigated. For example, a complaint of a gunshot might turn out on investigation to be a car backfiring. Or a burglary could simply be a missing personal item that was later recovered. Once verified, complaints were entered into the city's crime counts, but for unstated reasons, the geographical coordinates of the crime location were not carried forward or aggregated.

105. See Michael D. Maltz, *Which Homicides Decreased? Why?*, 88 J. CRIM. L. & CRIMINOLOGY 1489, 1490 (1998) (discussing general reliability of changes in homicide rates as a proxy for changes in local crime rates); see also MICHAEL D. MALTZ, U.S. DEP'T OF JUSTICE, NCJ-177615, *BRIDGING GAPS IN POLICE CRIME DATA 4-9* (1999), available at <http://www.ojp.usdoj.gov/bjs/pub/pdf/bgpced.pdf> (last visited July 15, 2003).

TABLE 3
DATA DOMAINS AND SOURCES

Variable	Data Source	Description
Jail and Prison Admissions	New York State Division of Criminal Justice Services, TRENDS file	Five Percent Sample of Jail Admissions, Twenty Percent Sample of Prison Admissions, Five Periods from 1985-96. Defendant residential address geocoded to census tract, neighborhood, and police precinct
Drug Arrests	New York State Division of Criminal Justice Services, TRENDS file	Ten Percent Sample of Felony Drug Arrestees from 1985-96, Charged with any of five drug charges: Sale or possession of controlled substances, Sale or possession of marijuana, Or possession of drug paraphernalia. Defendant residential address geocoded to census tract, neighborhood, and police precinct.
Homicide Victimization Rate	New York City Department of Health, Vital Statistics	Case level data from Vital Statistics records on homicide victimizations from 1985-96. Place of residence recorded, and geocoded to census tract, police precinct, or neighborhood.
Felony Complaint Rates	New York City Police Department, Office of Management, Analysis and Planning	UCR felony complaints by type of crime by precinct, 1985-97
Population, Housing and Economic Variables	New York City Department of City Planning	New York City Department of City Planning Population Division downloadable data, at http://www.nyc.gov/html/dcp/html/census/popdiv.html Also, www.infoshare.org , New York City files
Population and Social Characteristics	1990 Census Data	U.S. Bureau of the Census, Summery Tape File 3A.

To address the specific and theoretically significant contribution of drug enforcement on incarceration,¹⁰⁶ we constructed a time series on drug arrests as a measure of the intensity of drug enforcement.¹⁰⁷ This time series was created by obtaining a ten percent sample of drug arrests from 1985-97 from the New York State Division of Criminal Justice Services.¹⁰⁸ Each arrest record was ge-

106. See Blumstein & Beck, *supra* note 1, at 41; see also MAUER, *supra* note 2; TONRY, *supra* note 31, at 81-82.

107. Eric Baumer et al., *The Influence of Crack Cocaine on Robbery, Burglary, and Homicide Rates: A Cross-City, Longitudinal Analysis*, 35 J. RES. CRIME & DELINQ. 316, 329-30 (1998); Ousey & Lee, *supra* note 96, at 95-96.

108. For a description of the methods for this specific data source, see JEFFREY FAGAN & GARTH DAVIES, SUBSTANCE ABUSE POLICY RESEARCH PROGRAM, ROB-

ocoded to the residential address of the arrestee and then assigned to each type of spatial unit.

3. Results

a. Descriptive Statistics

Means and standard deviations for variables at both the precinct and neighborhood levels are shown in Tables 4a and 4b. Predictably, rates of felony crimes, drug arrests, homicide victimization, and both prison and jail incarceration are highly skewed for both levels of aggregation. Social factors are normally distributed, although missing data creates some divergence from the typical distribution of rotated factor scores.

We then used principal components factor analysis with varimax rotation to reduce these measures to a more parsimonious set consistent with theory. We repeated this process for both precincts and neighborhoods. We created nine factors and constructed factor scores from the loadings of each variable in the factor. Each measure within a factor contributes its weight to the overall factor score based on its coefficient. Table 5a shows the construction of dimensions of social structure within police precincts. Nearly all the factors are internally consistent and well-correlated. In Table 5a, seven factors each explain over seventy percent of the variance; only one factor—segregation—is relatively weak. We adjust for this weakness in model estimation by including a separate predictor for non-white population. The results are surprisingly strong, given the size and socially heterogeneous composition of police precincts in New York City.¹⁰⁹

Table 5b shows similar results for factors constructed at the neighborhood level. Eight of the neighborhood factors each explain over seventy percent of the variance. Only one factor—one of the social control dimensions—is weak. We adjust for the weakness in this factor by including measures of population size in the models estimating incarceration and models estimating crime trends.

The correlations among these factors are shown in Table 6a for precincts and 6b for neighborhoods. The correlations in Table 4a are all generally high and in the predicted directions. The jail and prison rates are correlated with all the social factors except immi-

ERT WOOD JOHNSON FOUND., THE EFFECTS OF DRUG ENFORCEMENT ON THE RISE AND FALL OF HOMICIDES IN NEW YORK CITY, 1985-95, FINAL REPORT 9-11 (2002).

109. See Tbl. 5a.

TABLE 4a
PRECINCT DATA DESCRIPTION

	Minimum	Maximum	Mean	Standard Deviation
Jail Rate	.29	101.14	10.57	12.02
Prison Rate	.07	13.97	3.01	2.92
Log Felony Complaint Rate	1.45	3.08	1.94	.23
Log Drug Arrest Rate	.12	1.85	.98	.39
Log Homicide Rate	.00	.28	.08	.06
Poverty/Inequality	-1.83	2.13	.02	.98
Segregation	-2.32	1.43	.015	.99
Social Control I	-2.88	1.79	-.03	.97
Housing Structure	-2.24	1.85	-.02	.98
Social Control II	-1.85	1.53	.07	.79
Immigration/Isolation	-1.45	3.25	.00	1.00
Human Capital	-2.05	2.06	-.02	.98
Log Population > 15	4.35	5.27	4.84	.22
Year	1985	1996	1990	3.97

TABLE 4b
NEIGHBORHOOD DATA DESCRIPTION

	Minimum	Maximum	Mean	Standard Deviation
Log Jail Rate	.00	3.90	.65	.53
Log Prison Rate	.00	3.51	.39	.36
Log Drug Arrest Rate	.00	4.00	.79	.53
Log Homicide Rate	.00	2.30	.06	.092
Poverty/Inequality	-1.81	3.52	.01	.99
Social Control I	-3.20	2.00	-.006	.99
Segregation	-2.19	1.39	-.002	.99
Housing Structure	-1.98	2.77	-.036	.86
Social Control II	-4.52	4.53	.024	.96
Immigration/Isolation	-1.65	3.99	.004	.99
Human Capital	-3.51	2.60	.004	.98
Log Population > 15	.70	5.24	4.07	.56
Year	1985	1996	1990	3.97

gration. The high correlations among the social factors illustrate the concentration of social disadvantage and isolation across the City's seventy-five police precincts. Year is not correlated with the social factors, as these are a static measure of the 1990 census values. The correlations for the neighborhood level measures of the same variables show a similar pattern. The correlations are generally significant, strong, and in the expected directions.

TABLE 5a
PRECINCT FACTOR COMPOSITION

	Rotated	Eigenvalue	% Explained Variance
Deprivation/Poverty		1.96	97.77
Households with Public Assistance Income	.99		
Households with Income Below Poverty	.99		
Poverty/Inequality		2.42	80.71
Households with Public Assistance Income	.95		
Households with Income Below Poverty	.96		
Labor Market/Human Capital I		3.40	84.91
College Grads—Persons 25 & Over	0.88		
Labor Force Participation—Persons 16 & Over	0.94		
Employment Rate—Persons 16 & Over	0.95		
Skilled Occupation—Persons 16 & Over	0.91		
Labor Market/Human Capital II		3.52	87.98
% At Least High School Grad—Persons 25 & Over	0.94		
Labor Force Participation—Persons 16 & Over	0.95		
Employment Rate—Persons 16 & Over	0.97		
Skilled Occupation—Persons 16 & Over	0.91		
Segregation		1.11	55.34
Racial Fragmentation Index	0.74		
Percent Nonwhite	0.74		
Social Control I—Supervision		2.27	75.77
% Youth Population (5-15)	0.87		
% Female Headed Households with Children <18	0.82		
Supervision Ratio (25-64 by 5-24)	-0.91		
Social Control II—Anonymity		1.31	65.71
Population-1990	0.81		
Residential Mobility—Same House as 1985	0.81		
Immigration/Isolation		1.60	79.56
Foreign Born	0.89		
Linguistic Isolation	0.89		
Housing Structure		1.74	86.97
Percent Rental Housing	0.93		
Housing Density (Persons per Room)	0.93		

TABLE 5b
NEIGHBORHOOD FACTOR COMPOSITION

	Rotated	Eigenvalue	% Explained Variance
Deprivation/Poverty		1.96	97.89
Households with Public Assistance Income	0.99		
Households with Income Below Poverty	0.99		
Poverty/Inequality		2.20	73.29
Households with Public Assistance Income	0.97		
Households with Income Below Poverty	0.95		
Gini for Household Income	0.61		
Labor Market/Human Capital I		3.14	78.43
College Grads—Persons 25 & Over	0.88		
Labor Force Participation—Persons 16 & Over	0.88		
Employment Rate—Persons 16 & Over	0.92		
Skilled Occupation—Persons 16 & Over	0.86		
Labor Market/Human Capital II		3.16	79.08
% At Least High School Grad—Persons 25 & Over	0.90		
Labor Force Participation—Persons 16 & Over	0.88		
Employment Rate—Persons 16 & Over	0.93		
Skilled Occupation—Persons 16 & Over	0.85		
Segregation		1.51	75.62
Racial Fragmentation Index	0.87		
Percent Nonwhite	0.87		
Social Control I—Supervision		2.34	77.88
% Youth Population (5-15)	0.94		
% Female Headed Households with Children <18	0.85		
Supervision Ratio (25-64 by 5-24)	- 0.86		
Social Control II—Anonymity		1.04	52.16
Population-1990	0.72		
Residential Mobility—Same House as 1985	0.72		
Immigration/Isolation		1.64	81.86
Foreign Born	0.91		
Linguistic Isolation	0.91		
Housing Structure		1.61	80.61
Percent Rental Housing	0.90		
Housing Density (Persons per Room)	0.90		

TABLE 6a
ZERO-ORDER CORRELATIONS AT PRECINCT LEVEL (PEARSON R, P)

	Jail Rate	Prison Rate	Log Felony Arrest Rate	Log Drug Arrest Rate	Log Homicide Rate	Poverty/ Inequality	Segregation	Social Control I	Housing Structure	Social Control II	Immigration	Human Capital
Prison Rate	.658											
	.000											
Log Felony Complaint Rate	.646	.386										
	.000	.000										
Log Drug Arrest Rate	.688	.813	.433									
	.000	.000	.000									
Log Homicide Rate	.647	.809	.385	.730								
	.000	.000	.000	.000								
Poverty/Inequality	.604	.796	.296	.823	.780							
	.000	.000	.000	.000	.000							
Segregation	.314	.486	.186	.630	.519	.638						
	.000	.000	.000	.000	.000	.000						
Social Control I	.304	.631	-.072	.581	.682	.786	.603					
	.000	.000	.165	.000	.000	.000	.000					
Housing Structure	.555	.599	.452	.732	.593	.822	.673	.478				
	.000	.000	.000	.000	.000	.000	.000	.000				
Social Control II	-.427	-.243	-.622	-.320	-.121	-.161	-.052	.221	-.293			
	.000	.000	.000	.000	.019	.002	.320	.000	.000			
Immigration/Isolation	-.151	-.090	-.122	.010	-.077	.147	.438	.122	.432	.229		
	.004	.085	.019	.849	.139	.005	.000	.019	.000	.000		
Human Capital	-.387	-.646	.004	-.607	-.649	-.865	-.582	-.887	-.590	-.158	-.273	
	.000	.000	.944	.000	.000	.000	.000	.000	.000	.002	.000	
Log Population > 15	-.532	-.410	-.593	-.493	-.308	-.372	-.146	-.044	-.346	.844	.266	.161
	.000	.000	.000	.000	.000	.000	.005	.397	.000	.000	.000	.002
Year	-.139	.138	-.217	.139	-.067	.000	.000	.000	.000	.000	.000	.000
	.007	.008	.000	.007	.202	1.000	1.000	1.000	1.000	1.000	1.000	1.000

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

TABLE 6b
CORRELATIONS NEIGHBORHOOD LEVEL PREDICTORS (PEARSON R, P)

	Log Jail Rate	Log Prison Rate	Log Drug Arrest	Log Homicide	Poverty/ Inequality	Social Control I	Segregation	Housing Structure	Social Control II	Immigration/ Isolation	Human Capital	Log Population > 15
Log Prison	.608											
	.000											
Log Drug Arrest	.636	.720										
	.000	.000										
Log Homicide	.319	.522	.478									
	.000	.000	.000									
Poverty/Inequality	.666	.738	.732	.505								
	.000	.000	.000	.000								
Social Control I	.441	.634	.557	.530	.752							
	.000	.000	.000	.000	.000							
Segregation	.489	.479	.481	.314	.587	.586						
	.000	.000	.000	.000	.000	.000						
Housing Structure	.546	.474	.518	.338	.720	.381	.665					
	.000	.000	.000	.000	.000	.000	.000					
Social Control II	.089	.094	.144	.117	.156	.152	-.064	-.009				
	.001	.000	.000	.000	.000	.000	.017	.741				
Immigration/Isolation	.160	.142	.152	.094	.304	.202	.516	.485	1.71			
	.000	.000	.000	.000	.000	.000	.000	.000	.000			
Human Capital	-.427	-.522	-.512	-.461	-.802	-.763	-.463	-.515	-.214	-.267		
	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000		
Log Population > 15	.133	-.007	.008	.005	.104	.075	.199	.212	.550	.416	-.076	
	.000	.794	.770	.839	.000	.005	.000	.000	.000	.000	.005	
Year	-.041	.091	.154	.017	.000	.000	.000	.000	.000	.000	.000	.000
	1.27	-.001	.000	.534	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

As an introduction to the distributions of dependent variables and critical predictors, we show in Table 7 the trends in crime and incarceration in New York City for each study year in the 1985-96 interval. Drug arrests rose as non-drug felony crime complaints declined.¹¹⁰ Prison and jail admissions rose through 1993 before declining in the 1996 panel.¹¹¹ The decline in incarceration was far shallower than the decline in felony complaints, and more closely mirrored the overall pattern of growth for drug arrests.¹¹² Homicides declined precipitously starting after 1990 in New York City,¹¹³ as shown in this table.¹¹⁴

TABLE 7 INCARCERATION AND CRIME, 1985-96					
Year	Non-Drug Felony Complaints	Drug Arrests*	Homicides	Jail Admissions**	Prison Admissions***
1985	535,885	46,000	1,312	53,380	9,676
1987	494,038	64,340	1,371	59,340	13,480
1990	573,813	64,760	1,978	51,600	19,224
1993	476,048	54,900	1,655	38,200	18,456
1996	325,413	76,540	844	44,420	15,044
*Based on a 10% sample **Based on a 5% sample ***Based on a 25% sample					

b. Model Estimates

In this Section, we report model estimates for trends in incarceration and crime over the 1985-86 interval. The results are presented in four sets of models. First, we estimate models of incarceration growth at both the precinct and neighborhood level. Separate models are estimated for jail and prison. Then, we estimate incarceration growth within neighborhoods. Both models include predictors for crime, but with different crime measures. And both models also use the adult population (persons over the age of fifteen years) as the offset to compute an incarceration rate. The third and fourth sets of models estimate the effects of incarceration on crime trends. Again, we estimate separate models for jail and prison, but with different measures of crime for precincts and neighborhoods. All models include controls for drug arrests and social structural conditions within neighborhoods and precincts.

110. See Tbl. 7.

111. See Tbl. 7.

112. See Tbl. 7.

113. See KARMEN, *supra* note 33, at 20-23; Fagan et al., *supra* note 16, at 1277.

114. See Tbl. 7.

We again use the adult population as the offset to estimate a crime rate. We use the natural log of the crime and arrest measures. Drug arrests and crime are lagged by one year in each model to estimate its effects on homicides or violence in the subsequent year. We also report exponentiated coefficients to illustrate the magnitude of the effects of the predictors on the dependent variables.

i. Incarceration Growth

The results for precincts are shown in Table 8 and for neighborhoods in Table 9. In the precinct models in Table 8, the jail and prison models differ in several ways. In the jail model, the non-drug felony crime complaint rate and the drug arrest rates are both significant predictors of between-precinct differences.¹¹⁵ The effect sizes for both felony complaint rates and drug arrest rates are quite high, and suggest the concentration over time of jail admissions in precincts with high crime rates. Among the structural factors, only the human capital predictor is significant.¹¹⁶ The interaction terms suggest that differences in jail rates over time are predicted (negatively) only by changing non-drug felony arrest rates.¹¹⁷ Jail rates appear to increase over time with declining felony complaint rates,¹¹⁸ a suggestion of the endogeneity of jail admissions as a social ecological feature of some precincts that operates independently from serious crime.¹¹⁹

After controlling for jail admissions, none of the crime factors predict between-precinct differences in imprisonment.¹²⁰ Among the social structural factors, only social control (supervision) predicts imprisonment.¹²¹ The interaction of time and drug arrests suggests that imprisonment rates within precincts over time are influenced by higher drug arrest rates. Higher drug arrest rates fuel prison admissions over time, after controlling for both other crime factors and social structural conditions. Even in eras of declining non-drug crimes, the continued application of intensive street-level

115. See Tbl. 6.

116. See Tbl. 6.

117. See Tbl. 6.

118. See Tbl. 6.

119. The policy engines for this dynamic—New York City's Order Maintenance Policing strategy—only began in 1994, so there is no simple policy-level explanation for the incorporation of jail as an ecological dynamic in these precincts. This dynamic, however, was highly racialized during these years. See, e.g., Fagan & Davies, *supra* note 65, at 462-64.

120. See Tbl. 8.

121. See Tbl. 8.

TABLE 8 POISSON REGRESSION OF INCARCERATION BY PRECINCT CRIME & SOCIAL STRUCTURE, NEW YORK CITY, 1985-96								
	Jail				Prison			
	Estimate	t	p(t)	Exp(B)	Estimate	t	p(t)	Exp(B)
Intercept	-19.97	-3.93		0.000	-12.61	-2.26	c	0.000
Time	0.143	2.52	c	1.154	0.041	0.66		1.042
Jail One Year Lag					-0.002	-1.54		0.996
(Log) Felony Complaint Rate*	3.097	3.35	a	8.559	1.871	1.67		3.658
(Log) Homicide Rate	-1.165	-0.28		0.312	2.788	0.67		16.25
(Log) Drug Arrest Rate*	1.804	2.03	c	3.492	-1.584	-1.80		0.334
Poverty/Inequality	0.432	0.25		1.541	-0.985	-0.56		0.373
Segregation	-0.346	-0.60		0.708	0.834	1.51		2.303
Social Control I	0.602	0.74		1.826	2.190	2.74	b	8.927
Housing Structure	0.562	0.56		1.754	-0.472	-0.46		0.624
Social Control II	-0.279	-0.48		0.756	-0.549	-0.89		0.578
Immigration/ Cultural Isolation	0.255	0.45		1.290	-0.584	-1.03		0.558
Human Capital II	2.416	2.12	c	11.20	-0.385	-0.32		0.681
Interactions with Time								
Jail One Year Lag					0.2E5	1.64		1.000
(Log) Felony Complaint Rate*	-0.032	-3.04	b	0.969	-0.017	-1.38		0.983
(Log) Homicide Rate	0.016	0.35		1.016	-0.028	-0.62		0.972
(Log) Drug Arrest Rate*	-0.016	-1.57		0.984	0.023	2.29	c	1.023
Poverty/Inequality	0.6E3	0.03		1.001	0.015	0.76		1.015
Segregation	0.006	0.90		1.006	-0.007	-1.15		0.993
Social Control I	-0.008	-0.91		0.992	-0.021	-2.41		0.979
Housing Structure	-0.004	-0.38		0.996	0.004	0.33	b	1.004
Social Control II	0.003	0.41		1.003	0.006	0.84		1.006
Immigration/ Cultural Isolation	-0.005	-3.83		0.995	0.006	0.99		1.006
Human Capital II	-0.025	-1.96		0.975	0.006	0.44		1.006
2 Log Likelihood	322.3				301.5			
N=370								
a = p< .001, b = p<.01, c = p<.05 * per 1000 population 15 and above								

drug enforcement results in higher rates of imprisonment within neighborhoods over time.

The results of the neighborhood models shown in Table 9 differ from the precinct models. Recall, however, that the crime measure used here is the homicide victimization rate, not the felony com-

TABLE 9
POISSON REGRESSION OF INCARCERATION BY NEIGHBORHOOD CRIME AND SOCIAL
STRUCTURE, NEW YORK CITY, 1985-96

	Jail				Prison			
	Estimate	t	p(t)	Exp(B)	Estimate	t	p(t)	Exp(B)
Intercept	-6.996	-2.19		0.001	-4.810	-1.31		0.008
Time	0.008	0.22		1.008	-0.029	-0.71		0.971
Jail Lagged One Year					0.001	3.39	a	1.000
(Log) Homicide Rate	1.538	0.43		4.66	-0.691	-0.25		0.501
(Log) Drug Arrest Rate*	2.612	3.57	a	6.114	-1.565	-2.78	b	0.337
Poverty/Inequality	2.420	1.66		11.23	-0.635	-0.54		0.530
Social Control I	-1.236	-1.69		0.291	1.417	2.46	b	4.124
Segregation	-0.538	-0.70		0.584	1.235	2.10	c	3.437
Housing Structure	-0.018	-0.02		0.981	0.474	0.54		1.606
Social Control II	0.760	-2.82	b	0.468	-0.234	-1.15		0.768
Immigration/ Cultural Isolation	0.311	0.63		1.364	-0.871	-2.30	c	0.419
Human Capital II	2.598	2.53	b	13.44	0.269	0.32		1.308
Interactions with Time								
Jail Lagged One Year					0	.		1.000
(Log) Homicide Rate	-0.014	-0.36		0.986	0.009	0.29		1.009
(Log) Drug Arrest Rate*	-0.024	-2.94	b	0.976	0.022	3.41	a	1.022
Poverty/Inequality	-0.019	-1.14		0.982	0.013	0.98		1.013
Social Control I	0.011	1.37		1.011	-0.013	-2.05	c	0.987
Segregation	0.009	1.08		1.009	-0.010	-1.51		0.990
Housing Structure	0.001	0.09		1.001	-0.006	-0.65		0.994
Social Control II	0.008	2.66	b	1.008	0.003	1.12		1.003
Immigration/ Cultural Isolation	-0.006	-1.01		0.995	0.009	2.20	c	1.009
Human Capital II	-0.026	-2.25	c	0.975	0.1E3	0.02		1.000
2 Log Likelihood	3873.2				3135.5			
N=1380								
a = p< .001, b = p<.01, c = p<.05 * per 1000 population 15 and above								

plaint rate. With this in mind, Table 9 shows that the drug arrest rate is a significant predictor of neighborhood differences in jail admissions.¹²² Neighborhoods with greater anonymity and higher human capital also have higher jail admission rates.¹²³ These fac-

122. See Tbl. 9.

123. See Tbl. 9.

tors are suggestive of some of the rapidly gentrifying neighborhoods in the City during this time.¹²⁴

The negative coefficient for the interaction of time with drug arrests suggests that jail admissions increase over time within neighborhoods with declining drug arrest rates. The coefficient for this interaction was in the same direction in the precinct model, but there it was not significant.¹²⁵ Here, at a finer unit of spatial resolution, the interaction becomes significant. The increase in jail admissions over time as drug arrests decline again suggests the endogeneity of jail as an embedded social ecological factor in poor neighborhoods.

The prison models suggest a similar dynamic, though manifested through drug arrests. Jail admissions this time are positively associated with prison rates,¹²⁶ suggesting the cascading effects of jail on prison admissions in smaller social areas. The exponentiated coefficient, however, is 1.00013, a very small effect. The drug arrest rate negatively predicts prison admissions, and here the effect size is quite large.¹²⁷ This may be an artifact of model specification, since the jail predictor may capture the effects of drug arrests. Several social structural factors are significant, including social control (weak supervision), racial segregation, and low levels of immigrant populations. Assuming that drug arrests are expressed in the jail predictor, it appears that imprisonment is embedded in neighborhoods with high rates of jail admission, a process that itself seems to be driven largely by drug arrests, and in the absence of strong structural influences.

This trend becomes apparent from the significant and positive interaction of time with drug arrests. Similar to the precinct model, prison admissions increase over time within neighborhoods with higher drug arrest rates. This occurs during a period of rising incarceration overall but (for at least the latter half of the period) declining crime rates. The slopes for social control are also significant but negative, suggesting that as social control (supervision) increases over time, prison admissions decline. The interaction of immigration with prison suggests that prison admissions are grow-

124. See Tbl. 9.

125. See Tbl. 8.

126. See Tbl. 9.

127. See Tbl. 9.

ing over time in neighborhoods with larger Latino populations, the City's largest immigrant population.¹²⁸

ii. Incarceration and Crime

To assess the effects of incarceration on crime, we estimated models at both the precinct and neighborhood levels. Crime rates in the precinct models were measured by non-drug felony crime complaint rates, and using homicide victimization rates in the neighborhood models. Both were measures logged in the analyses. Jail and prison admissions (logged) were included in each model as predictors and lagged by one year. Interactions with time were included to estimate within-unit change over time. The results are shown in Tables 10 and 11.

Table 10 shows that there are positive and significant effects of incarceration on felony complaint rates at the precinct level, controlling for social structural factors.¹²⁹ Over time, the effect of jail admissions is significant and positive, and the exponentiated coefficient (2.20) suggests that the effect is large.¹³⁰ Segregation (negative) and human capital (positive) also significantly predict felony complaint rates at the neighborhood level,¹³¹ although these factors may mask broad within-precinct differences across neighborhoods. The time interactions show that felony complaint rates within precincts decline over time with higher jail admissions.¹³² The pattern of interactions with social structural characteristics suggests that jail admissions tend to increase over time within precincts with higher rates of poverty, more racially segregated precincts, and precincts with lower rates of human capital.

The models for the effects of prison admissions on subsequent crime at the precinct level show similar patterns. There are positive and significant effects of prison admissions on felony arrest rates at the precinct level, controlling for social structural factors.¹³³ Again, the effect size is relatively large: each prison admission increases the likelihood of a felony crime complaint by a

128. In 2000, persons from Central and Latin America comprised fifty-three percent of the New York City residents who were born outside the United States. See N.Y. CITY DEP'T OF CITY PLANNING, POPULATION DIV., NYC2000: RESULTS FROM THE 2000 CENSUS: SOCIOECONOMIC CHARACTERISTICS 1 (2000), available at <http://www.nyc.gov/html/dcp/pdf/census/sociopp.pdf> (last visited July 15, 2003).

129. See Tbl. 10.

130. See Tbl. 10.

131. See Tbl. 10.

132. See Tbl. 10.

133. See Tbl. 10.

TABLE 10 POISSON REGRESSION OF INCARCERATION AND ENFORCEMENT EFFECTS OF ON NON-DRUG FELONY COMPLAINTS BY PRECINCT, NEW YORK CITY, 1985-96								
	Jail				Prison			
	Estimate	t	p(t)	Exp(B)	Estimate	t	p(t)	Exp(B)
Intercept	0.958	0.30		2.608	1.1201	0.35		3.065
Time	-0.039	-1.08		0.962	-0.041	-0.13		0.960
(Log) Jail Rate*	1.136	3.01	b	2.197				
(Log) Prison Rate*					1.480	2.51	b	2.789
(Log) Homicide Rate	-0.737	-0.39		0.600	-0.383	-0.20		0.680
(Log) Drug Arrest Rate*	-0.535	-1.33		0.691	-0.259	-0.65		0.836
Poverty/Inequality	1.187	2.03	c	3.278	1.016	1.71		2.760
Segregation	-0.481	-2.36	c	0.618	-0.460	-2.26	c	0.631
Social Control I	-0.381	-1.11		0.683	-0.880	-2.76	b	0.415
Housing Structure	0.721	1.94	c	2.057	1.125	3.08		3.079
Social Control II	-0.220	-1.10		0.802	-0.176	-0.87		0.839
Immigration/ Cultural Isolation	0.028	0.12		1028	-0.163	-0.74		0.850
Human Capital II	1.313	3.11	b	3.72	1.216	2.89	c	3.374
Interactions with Time								
(Log) Jail Rate*	-0.013	-2.92	c	0.988				
(Log) Prison Rate*					-0.016	-2.41	c	0.984
(Log) Homicide Rate	0.008	0.40		1.009	0.004	0.19		1.004
(Log) Drug Arrest Rate*	0.006	1.27		1.006	0.003	0.58		1.002
Poverty/Inequality	-0.014	-2.28	c	0.986	-0.013	-1.96	c	1.003
Social Control I	0.006	2.69		1.003	0.008	2.44	c	0.986
Segregation	0.003	0.76	b	1.006	0.006	2.57	b	1.008
Housing Structure	-0.005	-1.21		0.995	-0.009	-2.36	c	1.006
Social Control II	-0.4E4	-0.02		1.000	-0.001	-0.24		0.991
Immigration/ Cultural Isolation	-0.002	-0.79		0.998	0.000	0.05		0.999
Human Capital II	-0.015	-3.43	a	0.985	-0.014	-3.21	b	1.000
2 Log Likelihood	-194.4				-282.4			
N=1380								
a = p< .001, b = p<.01, c = p<.05 * per 1000 population 15 and above								

factor of nearly two.¹³⁴ The time interactions again mirror the jail effects: the negative interaction of prison admissions suggests that the slopes are inversely correlated with prison admissions. Here

134. See Tbl. 10.

TABLE 11
POISSON REGRESSION OF INCARCERATION ON HOMICIDE VICTIMIZATION RATES BY
NEIGHBORHOOD, NEW YORK CITY, 1985-96

	Jail				Prison			
	Estimate	t	p(t)	Exp(B)	Estimate	t	p(t)	Exp(B)
Intercept	-1.148	-0.24		0.317	-1.615	-.034		0.199
Time	-0.030	-0.57		0.970	-0.024	-0.45		0.976
Jail Rate*	0.787	0.46		2.196				
Prison Rate*					3.286	1.27		26.72
(Log) Drug Arrest Rate*	2.308	1.24		10.05	2.261	1.20		9.594
Poverty/Inequality	0.543	0.35		1.721	0.789	0.52		2.200
Social Control I	-0.749	-1.03		0.473	-0.838	-1.16		0.433
Segregation	-0.773	-1.07		0.462	-1.049	-1.46		0.350
Housing Structure	1.906	1.78		6.727	1.795	1.67		6.017
Social Control II	1.039	3.72	c	2.827	0.988	3.52	a	2.685
Immigration/ Cultural Isolation	-0.052	-0.11		0.950	0.114	0.25		1.121
Human Capital II	0.731	0.65		2.078	0.918	0.83		2.505
Interactions with Time								
Jail Rate*	-0.006	-0.29		0.994				
Prison Rate*					-0.033	-1.14		0.967
(Log) Drug Arrest Rate*	-0.024	1.14		0.976	-0.024	-1.10		0.977
Poverty/Inequality	-0.001	-0.05		0.999	-0.003	-0.17		0.997
Social Control I	0.012	1.49		1.012	0.015	1.83		1.015
Segregation	0.012	1.49		1.012	0.013	1.64		1.014
Housing Structure	-0.022	-1.80		0.979	-0.020	-1.69		0.980
Social Control II	-0.006	-2.01	c	0.994	-0.006	-1.80		0.994
Immigration/ Cultural Isolation	0.002	0.29		1.001	-0.001	-0.09		1.000
Human Capital II	-0.004	-0.35		0.996	-0.006	-0.52		0.994
2 Log Likelihood	3873.2				3477.1			
N=1380								
a = p< .001, b = p<.01, c = p<.05 * per 1000 population 15 and above								

the effect size is small (.98), suggesting that this may be an ecological echo of declining crime rates during the latter half of the time series. The pattern of interaction with the social factors suggests the concentration of imprisonment within precincts are characterized by several dimensions of social disadvantage.

Table 11 shows similar analyses, at the neighborhood level. Here, we predict homicide victimization rates at the neighborhood level from jail and prison rates one year earlier, controlling for drug enforcement and social structural characteristics of neighbor-

hoods. There are no effects of jail or prison rates in neighborhoods on homicide victimization. This most likely reflects the low base rates of homicide, especially in the later years in the series when homicides were sharply lower than in previous decades. Unfortunately, more localized crime measures are difficult to obtain. A more precise estimate of these effects might be obtained either from the use of addressable crime complaint and arrest data, or through a recurring household survey that would capture crime victimization.

IV. THE ENDOGENEITY OF INCARCERATION

When Professors Robert Bursik, Jr., and Harold Grasmick advanced their systemic theory of neighborhood and crime, they regarded social control as essential to regulating crime rates.¹³⁵ Social control is the product of social interactions that express and enforce social norms.¹³⁶ Social control is exerted not only by residents, but also transients or temporary residents, including those entering neighborhoods for work or visits.¹³⁷ The latter group shares liability for their community, though theirs is far more limited.¹³⁸ Bursik and Grasmick carefully structured a dynamic theory of social control, incorporating social ties and interactions among neighborhood residents.¹³⁹ They showed the interdependence between social structure and social control, illustrating how strains of everyday life can compromise the participation of local residents in social regulation.¹⁴⁰ Like many others, however, they did not consider incarceration to be an endogenous factor in social control.¹⁴¹ Others, however, such as Professor Dina Rose and her co-authors, have done so, both empirically and theoretically.¹⁴² Professor Jeffrey Morenoff and his colleagues show that social organization and social control are spatially embedded processes that influence neighborhood-level variations in violence.¹⁴³ Thus, rising and con-

135. BURSİK & GRASMIK, *supra* note 100, at 66.

136. *See id.* at 13-16; Tracey L. Meares & Dan M. Kahan, *Law and (Norms of) Order in the Inner City*, 32 LAW & SOC'Y REV. 805, 830-32 (1998); Sampson & Wilson, *supra* note 101, at 45-48.

137. BURSİK & GRASMIK, *supra* note 100, at 13-16.

138. *See, e.g.*, ALBERT HUNTER, *SYMBOLIC COMMUNITIES* 178-79 (1974).

139. BURSİK & GRASMIK, *supra* note 100, at 60-90.

140. *See id.*

141. *See id.*

142. Dina A. Rose & Todd R. Clear, *Incarceration, Social Capital, and Crime: Implications for Social Disorganization Theory*, 36 CRIMINOLOGY 441, 467-70 (1998).

143. Jeffrey D. Morenoff et al., *Neighborhood Inequality, Collective Efficacy, and the Spatial Dynamics of Urban Violence*, 39 CRIMINOLOGY 517, 550-53 (2001).

centrated rates of incarceration not only become a part of the fabric of poor communities, already susceptible to crime, but also they compromise the limited forms of social control that poor communities can mount. These dynamics are discussed below.

A. Incarceration and Social Regulation

In this Essay, we contribute evidence that incarceration provides a steady supply of offenders for more incarceration. We show that over a relatively long time period, and across very different levels of crime citywide and within neighborhoods, incarceration trends first unfold as closely tied to crime, and then over the interval, become somewhat independent of crime. As this cycle spirals forward, incarceration threatens to become endogenous in these neighborhoods, or “grown from within,” seeping into and permanently staining the social and psychological fabric of neighborhood life in poor neighborhoods of New York and many other cities. Incarceration thus is part of the ecological backdrop of childhood socialization, whose effects are multiplied by grinding poverty, and an everyday contingency, particularly for young men, as they navigate the transition from adolescence to adulthood.¹⁴⁴ As the risks of going to jail or prison grow over time for persons living in these areas, their prospects for marriage or earning a living and family-sustaining wage diminish as the incarceration rates around them rise, closing off social exits into productive social roles.¹⁴⁵ Over time, incarceration creates more incarceration in a spiraling dynamic.

The spatial concentration of incarceration distorts neighborhood social ecology and attenuates the neighborhood's economic fortunes through four social mechanisms that further embed incarceration into neighborhood life. First, the link between incarceration and unemployment exists not only at the individual level, but through socially mediated processes that ensue from concentration effects. In research on prison inmates in London in the late nineteenth century, for example, Professors John Hagan and Alberto Palloni show that incarceration tends to complicate efforts of ex-offenders to forge social links to legal work, increasing their chances of further incarceration.¹⁴⁶ Being imprisoned has a perma-

144. See, e.g., ADRIAN NICOLE LEBLANC, *RANDOM FAMILY* (2003).

145. Jeffrey Fagan & Richard Freeman, *Crime and Work*, 25 *CRIME & JUST.* 225, 239 (1999).

146. John Hagan & Alberto Palloni, *The Social Reproduction of a Criminal Class in Working Class London, circa 1950-80*, 96 *AM. J. SOC.* 265, 293 (1990).

ment effect on wages: those who have been incarcerated are likely not only to have reduced wage income, but the effect of imprisonment increases as workers get older.¹⁴⁷ This economic handicap is multiplied when ex-inmates are concentrated spatially, as their access to job networks are attenuated by the homogeneity of their social networks and exclusion from social networks of working people. The path from incarceration to irregular employment to crime is made wider and more efficient by the closure of access to legal job networks.¹⁴⁸

Second, concentrated incarceration compromises social control in a few ways. Incarceration increases the number of single-parent households within these neighborhoods.¹⁴⁹ Families are strained to exert control and supervision of their own children and other families' children in their neighborhoods. While some removals of inmates may decrease strain on families' financial and emotional well-being, the removal of one parent or caretaker often creates financial strains and limits access to child care and other resources that are essential to the economic survival of the urban poor.¹⁵⁰ In neighborhood life, the decrease in the number of older males in these neighborhoods weakens the general social control of children and especially adolescents, easing their entry into criminal networks. The concentration of incarceration strains citizens' relationships to law generally, and reduces their incentives to participate in social control.¹⁵¹ For example, Professor Daniel Nagin suggests that the social meaning of criminal sanctions is eroded by the con-

147. Bruce Western, *The Impact of Incarceration on Wage Mobility and Inequality*, 67 AM. SOC. REV. 526 (2002). For a qualitative description of the experience of returning from jail or prison, and the difficulties of connecting to jobs, see MARTA NELSON ET AL., VERA INST. OF JUSTICE, *THE FIRST MONTH OUT: POST-INCARCERATION EXPERIENCES IN NEW YORK CITY* (1999).

148. Western, *supra* note 147, at 547.

149. Hagan & Dinovitzer, *supra* note 3, at 123-24.

150. See LEBLANC, *supra* note 144, at 132-33. (portraying the strains on child supervision that result when one parent is sent off to prison). See Philip Genty, *Damage To Family Relationships as a Collateral Consequence of Parental Incarceration*, 30 FORDHAM URB. L.J. 1671, 1675 (2003) (discussing the adverse impacts of incarceration on family structure and parenting behavior, noting that "the limited reduced contact between incarcerated parents and their children has a long-lasting and damaging impact upon the parent-child relationship."). Professor Genty reports that the number of orders issued under the Adoption and Safe Families Act ("ASFA," Pub. L. No. 105-98, codified at 42 U.S.C. §§ 670-679a) terminating the parental rights of incarcerated inmates rose from 260 in 1997 to 909 in 2001. Professor Genty states that this is a very conservative estimate, because systematic is not kept on this indicator and the estimates were obtained by a Lexis search of court orders.

151. Nagin, *supra* note 13, at 33-36.

centration of "stigmatized" persons within neighborhoods, leading to both defiance of social norms and "counterdeterrence."¹⁵²

Third, the concentration of ex-offenders within social areas can also deplete the area's social capital, and complicate efforts of ex-inmates to forge links to legitimate employment. Removal of men to prison has a churning effect on illegal labor queues; in the context of limited access to legal work, the replacement process is efficient.¹⁵³ These effects accrue above the individual effects of economic disenfranchisement.¹⁵⁴ Moreover, concentrations of ex-inmates can further stigmatize areas and deter businesses from hiring locally or locating in such areas.¹⁵⁵ These dynamics suggest that the spatial concentration of incarceration can sustain an ecological dynamic that will mediate the individual outcomes of ex-offenders returning to those neighborhoods, and influence the life course of younger residents entering the labor force.

Voter disenfranchisement of convicted felons creates a fourth dynamic that adversely affects the political economy of neighborhoods with high incarceration rates. Patterns of racial residential segregation and the concentration of incarceration in poor, predominantly minority neighborhoods in New York and other cities, ensure that disenfranchisement will limit the ability of residents of those neighborhoods to influence local services and policies that both directly and indirectly affect crime and social control. The inability to influence political processes weakens leverage and access to important services that can moderate the risks of crime, from educational resources to trash removal and recreation.¹⁵⁶ Incarceration policy is embedded in a political process that benefits

152. *Id.* at 5; John Hagan, *The Social Embeddedness of Crime and Unemployment*, 31 *CRIMINOLOGY* 465, 486-87 (1993); Tracey L. Meares, *Social Organization and Drug Law Enforcement*, 35 *AM. CRIM. L. REV.* 191, 211-17 (1998); Meares & Kahan, *supra* note 136, at 819.

153. See Hagan, *supra* note 152, at n.24; see also MARTIN SANCHEZ-JANKOWSKI, *ISLANDS IN THE STREET: GANGS AND THE AMERICAN URBAN SOCIETY* (1991); John Hagedorn, *Gang Violence in the Post-Industrial Era*, in *YOUTH VIOLENCE* 365, 374 (Michael Tonry & Mark Moore eds., 1998).

154. Jeffrey Grogger, *The Effects of Arrests on the Employment and Earnings of Young Men*, 110 *Q. J. ECON.* 51, 61-66 (1995); see generally Fagan & Freeman, *supra* note 145, at 235-36.

155. WILLIAM JULIUS WILSON, *WHEN WORK DISAPPEARS: THE WORLD OF THE NEW URBAN POOR* 46 (1996).

156. Mark E. Thompson, *Don't Do the Crime If You Ever Intend to Vote Again: Challenging the Disenfranchisement of Ex-Felons as Cruel and Unusual Punishment*, 33 *SETON HALL L. REV.* 167, 178-79 (2002).

both corrections professionals and lawmakers.¹⁵⁷ Convicted felons are disqualified from several forms of political participation and citizenship: jury service, the right to vote, and the right to hold elective office.¹⁵⁸ In some states, disenfranchisement is time-limited, but in some other states felons are disenfranchised for life.¹⁵⁹

While lawmakers may derive political benefits from sustaining high rates of incarceration, the accumulation of disenfranchised voters in their districts defangs putative re-election challenges. In this way, disenfranchisement weakens political leverage over both state law and local policies that might moderate the practices that intensify incarceration patterns. Disenfranchisement further deprives residents of opportunities to engage in the social practice of law through activities such as jury duty, and motivates “resistance” to everyday citizen-law interactions such as cooperation in investigations.¹⁶⁰ Finally, the racial-spatial concentration of incarceration intensifies racial residential segregation, depressing real estate val-

157. In New York, state legislators and the Governor received large campaign contributions from private corrections contractors, they are provided personal services such as chauffeurs, and are assigned campaign workers (from the contractors' payrolls) for their re-election campaigns. See Clifford Levy, *Favors Heaped on Lawmakers Raise Scrutiny*, N.Y. TIMES, Feb. 17, 2003, at A1 (showing that private contractors, such as the Correctional Services Corporation (“CCA”), currently have contracts of \$22 million to operate adult correctional facilities for the State of New York). According to the *New York Times* report, approximately \$30,000 in campaign contributions was given to the Republican State Committee both by CCA and private contributions made by CCA on behalf of its employees. In addition to gifts, campaign contributions and logistical support, several state legislators living in New York City received free transportation back and forth to the state capital in Albany, approximately 150 miles from the City, in vans used by corrections officers to shuttle prisoners back and forth to court hearings in the City. In exchange for these services, letters were written in 1997-98, for example, to the Governor's Office requesting that the contracts to CCA be continued or expanded. See JOEL DYER, *THE PERPETUAL PRISONER MACHINE: HOW AMERICA PROFITS FROM CRIME* 273-74 (2000). California Governor Gray Davis proposed a \$40 million increase for the Corrections Department's \$5.3 billion budget for the coming fiscal year, and further proposed building a new death row at San Quentin Prison at a cost of \$220 million. The state faces a budget shortfall of \$15 for the fiscal year. See John M. Broder, *No Hard Time for Prison Budgets*, N.Y. TIMES, Jan. 19, 2003, § 4, at 5.

158. 28 U.S.C. § 1865(b)(5) (1994) (disqualifying persons convicted of a crime punishable by imprisonment for more than one year from jury service); *Developments in the Law—One Person, No Vote: The Law of Felon Disenfranchisement*, 115 HARV. L. REV. 1939, 1940 (2002).

159. MAUER, *supra* note 2, at 186-87; Brian Pinaire et al., *Barred from the Vote: Public Attitudes Toward the Disenfranchisement of Felons*, 30 FORDHAM URB. L.J. 1519, 1525 (2003).

160. Thompson, *supra* note 156, at 176-77.

ues and frustrating residents' efforts to build capital through home ownership.¹⁶¹

Denying felons the right to vote and other privileges, then, is not simply a recurring form of stigma, *infamia*, or punishment.¹⁶² When incarceration rates reach such a critical mass that ex-felons may alter elections, the fates not only of those persons, but also of the persons who live near them also are harmed. The effects of disenfranchisement on political outcomes is yet another dimension of the endogeneity of incarceration in poor neighborhoods, and its capacity for self-replication. The exclusion of felons from political participation exacts a political and economic cost for them and for their neighbors in the social areas where incarceration rates are highest.

B. Incarceration, Law, and Policy

As incarceration policies have grown steadily over the past quarter century, there has been very little analysis of the implications of alternative policies. Stochastic models have been available for decades to estimate an optimum level of incarceration that might balance the fiscal and due process constraints of imprisonment with its crime control benefits.¹⁶³ Yet the limited body of systematic analysis pales in contrast to the scale of imprisonment. And, almost none of the research on imprisonment addresses its larger role in legal or social control of crime.

Accordingly, we raise in this Essay several points that clarify the role of incarceration in a systemic theory of crime, law, and social control. First, the negative interaction of time and various measures of law enforcement on incarceration rates suggests that early in the time interval, when crime rates are increasing, drug enforcement contributed to crime, but these effects wane over time as crime declines but incarceration remains constant. At some tipping point incarceration transitions from an externality in local social networks to become integrated in social networks and an essential part of the dynamics of social control. The constant rearrangement of social networks through removal and return of prisoners threatens to become a systemic part of neighborhood life.

161. *Id.* at 177-79

162. George Fletcher, *Disenfranchisement as Punishment: Reflections on the Racial Use of Infamia*, 46 UCLA L. REV. 1895, 1902 (1999).

163. Alfred J. Blumstein & Daniel Nagin, *On the Optimum Use of Incarceration for Crime Control*, 26 OPERATIONS RES. 381, 395-97 (1978); see Alfred J. Blumstein et al., *The Dynamics of a Homeostatic Punishment Process*, 67 J. CRIM. L. & CRIMINOLOGY 317, 330 (1977).

Second, the analyses at the precinct level show the sensitivity of incarceration to enforcement practices that are implemented and managed at this larger and more socially heterogeneous unit of analysis. Incarceration is the product of policies that are set and administered at a political and political-economic level beyond neighborhoods. Neighborhoods exist within these larger administrative units, and in New York City, there often are several neighborhoods within each precinct.¹⁶⁴ When considering incarceration effects, and estimating the interdependency of crime and incarceration within neighborhoods, conceptual and analytic models should consider the nested structure of effects—policing is managed at higher levels of aggregation than is the locus of effects of local social networks, while larger citywide effects represent an even higher level of aggregation. How we re-conceptualize the conventional approaches to studying neighborhood context should anticipate a nested model of social and political effects whose consequences exert influences up and down the causal chain.

Third, data limitations of this study point to directions for further research. Conclusions about the effects of incarceration on crime at finer units of spatial and social resolution will require more extensive measurement. The importance of events in adjacent areas will also require that estimates of spatial convergence and autocorrelation be included in models estimating localized dynamics of incarceration and crime. In addition to improved measurement of crime in small areas, the effects of “structural covariates” of crime are highly dependent on the unit of aggregation. The interpretation of these effects is sensitive to the unit of spatial and social aggregation, and errors of interpretation could arise from such misspecification. In this study, we see evidence that at some tipping point, incarceration remains stable or continues to increase even as crime—the supply of individuals for incarceration—remains constant or declines. Accordingly, more refined measures of the incidence versus the prevalence of incarceration at the local level are necessary to make sense of the “churning effect” of incarceration both on crime and on social control.

Fourth, the dynamics of the jail population differ from the dynamics of imprisonment, and estimates of incarceration effects must account for the unique but related effects of each. In two models, we see that the jail admission rate contributes to the imprisonment rate, suggesting a cascading effect of jail on prison. But

164. See BRATTON & KNOBLER, *supra* note 73, at 229-30; JACKSON & MANBECK, *supra* note 80, at xii-xvi.

the dynamics are likely to be more complicated than a simple cascade of incarceration. Jail populations leave and return to neighborhoods more frequently, exerting a churning effect on local social control through social disorder and low-level crime. These effects also may invite more enforcement, raising the prospect of closer surveillance of other criminal activity, and increasing the risk of detection and incarceration.

Finally, two dimensions of law are critical factors in the production and internalization of incarceration within precincts. One is the obvious effect of drug laws and the policy and organizational incentives to aggressively enforce them. And the second are predicate felony laws that mandate incarceration after a person's first felony conviction. Drug arrests often produce felony convictions, which then establish criminal histories that increase the likelihood of incarceration upon a subsequent arrest. Drug arrests were important contributors to incarceration early in the panel, but their effects diminished over time. The return of prisoners to communities who may be rearrested guarantees their return to prison when they carry a prior felony conviction. Together with heightened parole surveillance and drug testing, the frameworks of enforcement and sentencing laws are powerful engines that drive incarceration, even as crime rates generally are in decline. Just as police practices and management become part of an ecological dynamic of incarceration, the broader legal context also seems to be endogenous to the dynamics that produce pockets of concentrated incarceration that endure over time.

CONCLUSION

The social exclusion of America's correctional population poses a challenge to democracy that demands political and social attention. Only recently has a civic debate begun on the political and social consequences of the production of incarceration.¹⁶⁵ Research also has led to reflection on the laws and policies that sus-

165. See, e.g., Human Rights Watch, *Drugs & Human Rights, Reform the Rockefeller Drug Laws* (2002), at <http://www.hrw.org/campaigns/drugs/> (last visited July 15, 2003); see also Michelle Goldberg, *Reforming Rockefeller Drug Laws*, ALTERNET.ORG, Aug. 6, 2002, at <http://www.alternet.org/story.html?StoryID=13774> (last visited July 15, 2003) (quoting former Republican State Senator John Dunne, author of the "Rockefeller Drug Laws," stating that these laws have been a ". . . well documented failure."); Lara Jakes & John Caher, *Draconian Drug Laws No Panacea*, ALBANY TIMES UNION, May 9, 1999, at A1; Michael Massing, *The Elephant in the Room*, SALON, Feb. 22, 2003, at <http://archive.salon.com/health/feature/2000/02/22/massing/index.html> (last visited July 15, 2003).

tain incarceration over time and detach it from the social problems it was meant to address.¹⁶⁶ With nearly two million Americans incarcerated in American jails and prisons, a debate on the intended, unintended, and collateral consequences of this policy is long overdue. Such a debate is now underway in many state legislatures across the country;¹⁶⁷ at least one state, Michigan, has eliminated its mandatory minimum drug sentences,¹⁶⁸ and several other states are actively considering revising mandatory minimum laws.¹⁶⁹ Such a debate is critical to the political and social health of the nation.

166. See, e.g., Ernest Drucker, *Population Impact of Mass Incarceration Under New York's Rockefeller Drug Laws: An Analysis of Years of Life Lost*, 79 J. URB. HEALTH: BULL. N.Y. ACAD. MED. 1 (2002), available at <http://www.nyam.org/publications/online/pdf/rockefeller.pdf> (last visited July 15, 2003).

167. See *Michigan to Drop Minimum Sentence Rules for Drug Crimes*, N.Y. TIMES, Dec. 26, 2002, at A26.

168. See Anand Giridharadas, *National Briefing: Midwest: Michigan: Revising Mandatory Minimums*, N.Y. TIMES, Feb. 28, 2003, at A23 (stating that Michigan's new sentencing guidelines have eliminated mandatory minimum ten year sentences for offenses involving fifty to 224 grams of a controlled substance, and twenty year minimum sentences for amounts over 225 grams); see also *Michigan to Drop Minimum Sentence Rules for Drug Crimes*, *supra* note 167, at A26.

169. See *supra* note 166 and accompanying text. Legislation has been introduced in Connecticut, Indiana, Iowa, Kansas, Louisiana, Missouri, New Jersey, and North Carolina that would reduce or eliminate mandatory minimums.

APPENDIX A DATA SOURCES AND MEASURES

CRIMINAL HISTORIES AND INCARCERATION RECORDS

Incarceration and criminal history data were obtained from the New York State Division of Criminal Justice Services ("DCJS"). All records were geocoded by residential address of the inmate, and aggregated to census tract, neighborhood,¹⁷⁰ and police precinct. Each inmate record includes demographic data (age, race, gender), case characteristics (arrest charge category, case disposition, and sentence length).

CRIME RATES

Data on crime rates by precinct were obtained from New York City Police Department records of felony crime complaints for 1985-96. Crimes were reported in specific crime categories (murder, aggravated assaults, robbery, motor vehicle theft, etc.), and aggregated into felony violence, felony property, and other felony crimes. Crimes are compiled on forms consistent with Uniform Crime Report crime categories.¹⁷¹ Crime-specific and crime-general rates per 1,000 population were computed for each precinct.

HOMICIDE RATES

We use homicide victimization rates as an alternate measure of criminal activity for analyses at the neighborhood level. In New York City prior to 1994, general crime arrest and report indicators are available only for administrative units of aggregation such as police precincts.¹⁷² Address records for homicide victimization, however, are available for each year in the series. The victim's residence was geocoded into spatial coordinates, and assigned to hierarchically organized spatial units: census block group, census tract, neighborhood, and police precinct.¹⁷³ Once aggregated, measures

170. JACKSON & MANBECK, *supra* note 80, at xii-xv; *see supra* note 82 on neighborhood boundaries. *See* <http://www.infoshare.org> (last visited July 15, 2000), for specific boundary maps and demographic information about the neighborhood boundaries.

171. U.S. Dep't of Justice, Fed. Bureau of Investigation, Uniform Crime Reports, available at <http://www.fbi.gov/ucr/ucrarticle.htm> (last visited July 15, 2003).

172. *See supra* note 104 and accompanying text; *see also* BRATTON & KNOBLER, *supra* note 73, at 233-39.

173. We use victim residence as a proxy for event location, based on a comparison of the distance from victim residence to location of the body. This data was available from records of the New York City Medical Examiner, and was analyzed for a subsample of homicide victimizations of males eighteen to thirty-five years of age. The two addresses were geocoded and the distance computed for each case. Approx-

are computed including the number and rate of homicides each year in the series, disaggregated by method (firearm versus other) and demographic categories (gender, race, and age).

DRUG ENFORCEMENT

We include drug arrests in the model as a measure of drug enforcement. Despite weaknesses in the reliability of drug arrests as a measure of drug markets,¹⁷⁴ these limitations may be more salient for cross-city research and less vulnerable to within-city neighborhood variation. Also, several studies provide evidence that drug arrests are reasonable proxies for overall drug enforcement activity and also for drug market activity.¹⁷⁵

NEIGHBORHOOD INDICATORS: SOCIAL STRUCTURE, ECONOMIC STATUS, AND SOCIAL CONTROL

We included measures of social and economic factors that reflected contemporary theory regarding “place” and violence, theories that incorporate not just the structural deficits of social areas but also their dynamic processes of social control. We selected nineteen tract-level variables from the 1990 Census files, and sorted them into seven separate dimensions that reflected these theoretical domains. These variables are classified into constructs that reflect dimensions of ecological or neighborhood risk. Dimensions include: poverty, racial residential segregation, social control, population mobility (anonymity), labor force participation, housing structure, and immigration.

- *SOCIAL CONTROL*—We computed two dimensions of social control. The first captured the extent of supervision of young people within neighborhoods, including: 1) the concentration of youth population; 2) the percent of female-headed households with young children; and 3) the ratio of youths to adults.

mately sixty percent of the homicide victims were killed within two miles of their homes, and an additional twenty percent were killed within two miles of home. Since victim residence was available for the full sample of homicides, we used victim residence as a proxy for the location of the event. The proximity of event and residence suggested that error in assignment of individuals to locations would be small and randomly distributed. Also, much of the error in this distribution would be accounted for by the use of spatial autocorrelation of events in surrounding tracts.

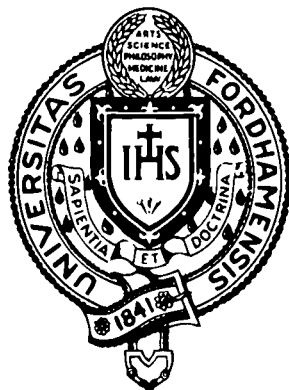
174. See, e.g., TONRY, *supra* note 31, at 83-104 (discussing the politicization of drug arrest data).

175. Baumer et al., *supra* note 107, at 325-26; Ousey & Lee, *supra* note 96, at 80; Richard Rosenfield & Scott Decker, *Are Arrest Statistics a Valid Measure of Illicit Drug Use? The Relationship between Criminal Justice and Public Health Indicators of Cocaine, Heroin, and Marijuana Use*, 16 JUST. Q. 685, 696-97 (1999).

The second dimension examined population size and change, including: 1) the overall size of the population; and 2) residential stability and turnover, based on length of residence.

- *POVERTY*—We computed three indicators of poverty: 1) percentage of households with incomes below the poverty level; 2) percent of households receiving public assistance; and 3) a Gini coefficient to measure inequality of household income of that tract relative to other tracts in the City.
- *LABOR MARKET PARTICIPATION*—Labor market participation and human capital within the tract were measured with several variables: 1) employment rates; 2) percent employed in professional or managerial jobs; 3) the percent of the adult population over twenty-five with a high school education; and 4) the overall labor force participation rate (i.e., those working and those seeking work).
- *RACIAL RESIDENTIAL SEGREGATION*—We used a measure of racial fragmentation to characterize segregation and population heterogeneity within census tracts.¹⁷⁶
- *HOUSING STRUCTURE AND MARKET CONDITIONS*—Three dimensions of housing were computed: 1) vacancy rates: the percentage of vacant housing units; 2) overcrowding: the mean number of persons per room in residential units; and 3) the percent of housing units that are owner-occupied or rented.
- *IMMIGRATION*—Two dimensions of immigration include linguistic isolation and whether the head of the household was foreign-born.

176. Residential racial fragmentation is computed as $1 - ((\%black)^2 + (\%white)^2 + (\%Hispanic)^2 + (\%other)^2)$. See CHARLES LEWIS TAYLOR & MICHAEL C. HUDSON, *WORLD HANDBOOK OF POLITICAL AND SOCIAL INDICATORS* 216 (2d ed. 1972).



**FIGURE 2. INCARCERATION RATES BY POLICE PRECINCT
NEW YORK CITY, 1985 - 1996**

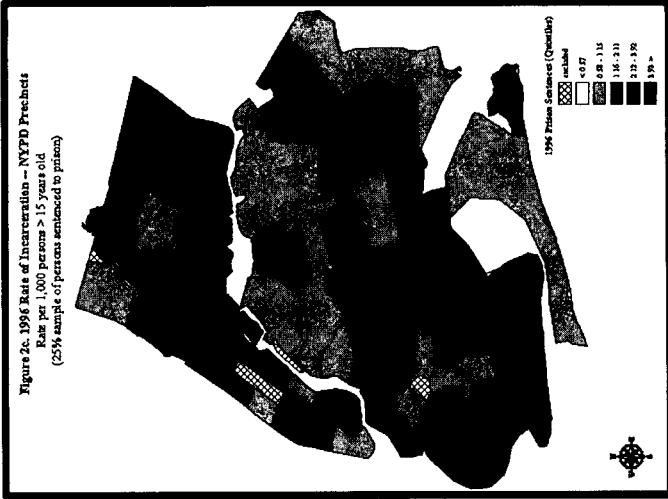
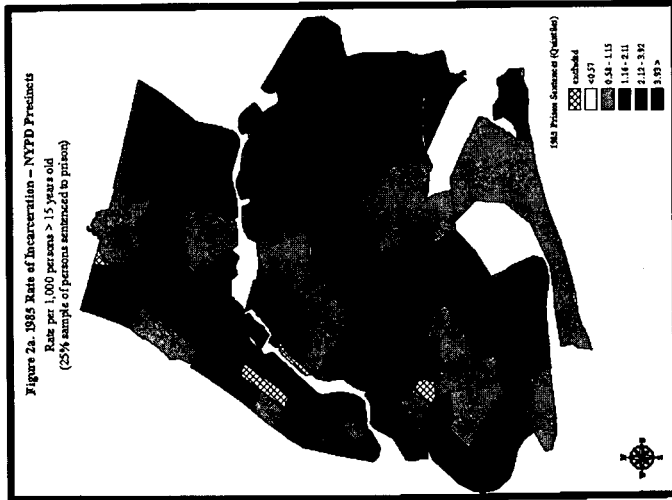


FIGURE 3. INCARCERATION RATES BY NEIGHBORHOOD NEW YORK CITY, 1985 - 1996

